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JULY, 1959

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AMERICAN AVIATION Publication Since 1937

airlift

WORLD AIR TRANSPORTATION

In This Issue:

- BIG MAIL BREAKTHROUGH COMING
- 15 ANSWERS ON AIR UNION
- SHOULD AIRPORTS REAP PROFITS?

BONANZA
precision "Nav-Com" performance
wilcox
it with a CANARI package installation
Most of Bonanza Air Lines' routes cross the major East-West airways. Thus, their operations require the utmost precision in navigation and communications.
To meet their demands, Bonanza Air Lines selected Wilcox CANARI Equipment for its pin-point accuracy and proven reliability.
Bonanza Air Lines has achieved an enviable safety record. They are sure to maintain it with their F-27 Silver Dart jet-prop fleet equipped with Wilcox CANARI navigation and communications system.
For more detailed information about the advantages of installing Wilcox CANARI equipment in your aircraft . . . whether for commercial or business operations . . . write, wire or phone . . .
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Fourteenth & Chestnut Sts., Kansas City 27, Mo., U. S. A.
F-27A
SILVER DART
BONANZA AIR LINES
Six Reasons Why You Should Choose
Highest accuracy
Proven reliability
Simplified maintenance
Compact size
Lightweight
Low cost

How to Shed Ice without Spoiling Air Flow

Iceguards by Goodyear put the heat on a cold foe of all-weather helicopter flight

1. THE NEW REQUIREMENT—Helicopters must fly in weather that would have kept them on the ground before. The reason: increasing need for the helicopter in both commercial and military service. Thus—ice elimination for helicopters has become of prime importance. The helicopter itself moves through moist air at slower speeds than conventional aircraft, but its rotor blade whirls at high velocity—and ice build-up is most likely to occur on this critical area.

Kaman HU2K

Sikorsky HSS-2

2. BUT THERE'S A PROBLEM INVOLVED—In removing ice from a whirling rotor blade, disruption of air flow by the deicing device can upset the aerodynamics of helicopter flight. For this reason the only safe method of helicopter ice removal is *electrothermal* deicing. And the most effective protection of this type is the Iceguard—a thoroughly proved all-weather safeguard by Goodyear—now in use on the Sikorsky HSS-2 and the Kaman HU2K.

3. CONSIDER THESE ICEGUARD ADVANTAGES

Works entirely by controlled heat which can be activated automatically when icing conditions are first encountered. Iceguards are available in two types: knitted wire elements and ribbon foil elements, both rubber-embedded. Special stainless steel sheath assures high erosion resistance. The complete system is extremely thin—fits snugly to the sharp leading edges of the rotor blade—and is remarkably light weight.

4. FOR IMPROVED ICE PROTECTION on *any* kind of aircraft, Iceguards by Goodyear offer maximum dependability with minimum weight. And they are especially suitable for the thinner wings of jet aircraft. More information on Iceguards—and their many protective applications—is yours for the asking. Simply write Goodyear, Aviation Products Division, Akron 16, Ohio, or Los Angeles 54, California.

AVIATION PRODUCTS BY **GOODYEAR**

Iceguard—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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BPA

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NAP

JULY, 1959—VOL. 23, NO. 2

airlift

WORLD AIR TRANSPORTATION

An AMERICAN AVIATION Publication Since 1937

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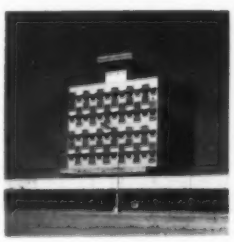
PARIS AIR SHOW—1959 EDITION
This French Aviation exposition held last month upheld its label as Europe's number one aviation show. See exclusive *AIRLIFT* picture report. Pages 28-29.

CONVAIR 880 PROGRESS REPORT
The San Diego jet entry is moving through its flight test program without a hitch, and so are its GE engines. For details read Fred Hunter's special report. Page 49.



SMALL AIRPORT WITH BIG PLANS
Peoria, Ill. plans for 1970 with a new $1.5 million terminal and $3 million more in other improvements, including some new airport ideas. Page 69.

KLM'S SHOP IS READY FOR JETS
Europe's newest in airline overhaul shops is KLM's installation at Schiphol Airport —all fitted for turbine overhaul before the jets arrive. Page 77.

On the Cover Air traffic controllers Robert McDonald (left) and Jack Newman try out a new tool for monitoring traffic during a peak period at Idlewild (N.Y.) ATC Center. It's a scan conversion (radar to television) system that gives controllers a "target with a tail" representing aircraft in the area. System is built by Intercontinental Electronics Corp., Mineola, N.Y.

Exclusive *AIRLIFT* photo

An economical solution to

ALLISON
Prop-Jet
SUPER CONVAIR

Improved Performance...More Payload...Lower Investment

Here's the answer to your new aircraft equipment problems–an answer that could show your airline the way to an improved financial picture with greater year-end profits–or bring your corporation important savings in executive time.

It's the Allison Prop-Jet Super Convair–the perfect marriage of a time-proved airframe and a brilliant new Prop-Jet system backed by nearly one million hours of flight experience. The airplane converted to Allison 501 Prop-Jet engines and Aeroproducts Turbo-Propellers fully meets jet-age performance standards, yet is available at a fraction of the price of comparable new aircraft.

The airframe: A Convair 340/440, the same airframe which has proved itself in millions of miles of airline service on both main and feeder routes, plus thousands of hours with these same Allison Prop-Jet engines and Aeroproducts propellers.

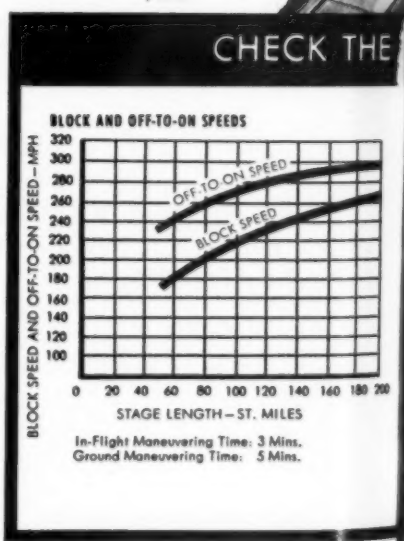
The propulsion system: The Allison 501 Prop-Jet engine and Aeroproducts Turbo-Propellers–the matched team currently powering Lockheed Electras now in service or on order for 15 of the world's leading airlines.

And here's what a speedy, comfortable, money-making Convair converted to Allison Prop-Jet power can mean to your operation:

- Seating capacity increased–up to 58 passengers.
- Sharply reduced need for capital investment in aircraft and equipment handling.
- Passenger-attracting ships that cruise at a schedule-cutting 345 mph–fully 30 mph *faster*, pound for pound, than similar prop-jet conversions.
- Swift aircraft with increased range and the ability to fly *over* foul weather.
- Fully modern equipment, ideal for short- and medium-range service.
- Highly efficient equipment that far outearns comparable aircraft–old or new.

This swift, comfortable ship is far quieter–has far less vibration–than any piston-powered plane, gives an airline or corporate owner a plane packed with passenger appeal–a craft that meets any jet-age competition in its field.

If you have an interest in airlines–or would like an analysis of your corporate aircraft or airline operations–write on your letterhead to:



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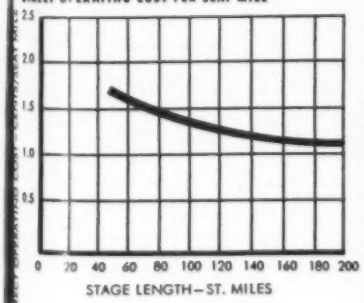
no jet-age aircraft needs

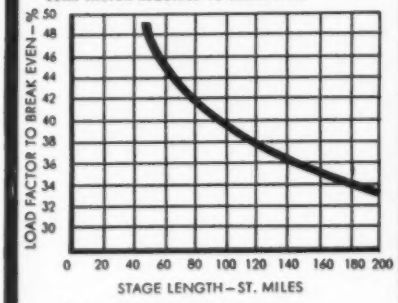
HARTS...there's profit in Allison Prop-Jet Super Convairs

DIRECT OPERATING COST PER SEAT MILE



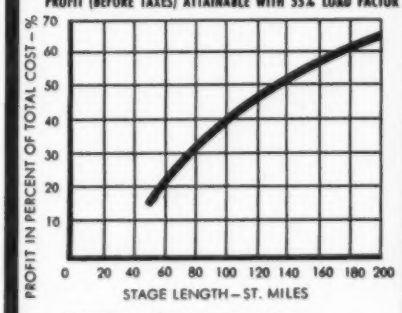
Based on 56 seats

LOAD FACTOR REQUIRED TO BREAK EVEN



Indirect Costs = 100% of Direct Costs
Revenue = 7.0¢ Pass. Mile
56 Seats
No Cargo Revenue

PROFIT (BEFORE TAXES) ATTAINABLE WITH 55% LOAD FACTOR



Total Cost = Direct & Indirect Costs
Indirect Cost = 100% of Direct Costs
Revenue = 7.0¢ Pass. Mile
56 Seats
No Cargo Revenue

ALLISON PROP-JET POWER

GM
AEROPRODUCTS PROPELLERS
JET POWER

AEROSMITH • ENGINEERS • DESIGNERS • MANUFACTURERS OF SEATS AND GALLEYS

More than 67 airlines operating throughout the world are equipped with Aerosmith seats and galleys . . . Aerosmith Products has designed and produced passenger seats for 34 of the 47 Fairchild F-27's delivered as of May 1 for airline use.

Aerosmith PRODUCTS • L. B. SMITH AIRCRAFT CORPORATION • INTERNATIONAL AIRPORT • MIAMI, FLORIDA

Circle No. 31 on Reader Service Card.

Another Breakthrough Soon: Mail

More big air carrier business is on the way.

No one in either the operating or manufacturing industries should overlook the vastly increased volume of mail of all classes which the airlines will be carrying within a few years.

Very rapidly the railroads are disappearing from the postal scene. Inevitably the airlines will become the primary carrier of the U.S. mails.

The reason isn't hard to find. Just take a look at the number of mail-carrying trains in thirty short years:

1929—17,700
1939—10,000
1959—less than 2400

Every day one more mail-carrying train is discontinued forever. The decrease has been very sharp.

Every day the Post Office Department's task of routing mail by the rails becomes tougher. Delivery complaints will continue to mount.

It is only a matter of time when all first-class mail will go by air whenever air is faster. But that is only the beginning. Next will come parcel post in bigger volume, along with the "time element" second-class mail which consists of newspapers and news magazines. The Post Office is using trucks more and more, but trucks are only a partial answer for short-haul routes.

Already a substantial volume of first-class mail is being carried by the airlines under temporary arrangements, but the rates are too low.

This month—July—is an important milestone in the historic transition of mail carriage from surface to air. The much-awaited report by Robert Heller & Associates, the Cleveland consulting firm, to Postmaster General Summerfield was due July 1. Shortly all or part of this report will be transmitted to Congress. It is an absolute certainty that this report will recommend greater use of air service for several classes of mail.

The railroad lobby will fight. But the railroad lobby isn't as powerful as it used to be. Eastern railroads would like to discontinue even more unprofitable passenger and mail trains. But fight or not — and Congressional action is an essential step to more mail by air—neither the Post Office Department nor Congress has any real choice in the matter. Facts are facts. There aren't enough mail-carrying trains to do the job. And a year from now there will be fewer.

The prospect of much additional mail is not an unmixed blessing to the airlines but it can become so if the carriers focus attention on the problems. One major item is compensation. The basic rate when all first-class mail goes by air must be higher. Another item is scheduling. Mail and passengers don't move at the same hours. Post Office requirements will mean that more and more cargo planes must be utilized for mail. But these planes can offer more capacity for cargo—and more capacity means more frequency, better scheduling for cargo, and more sales opportunities.

At stake in the coming battle are millions upon millions of ton miles of various classes of mail. It is not likely that third-class and some fourth-class mail will be handed over to the airlines in the near future—but they can prepare for the day of offering to haul it at low bulk rates. But there's enough in the offing to keep a substantial fleet of airplanes busy.

In forty years the transfer of important mail from surface to air will have taken place. It's big business. The railroads profited hugely for years. The airlines won't get rich off the mail, but mail can be the basis for a sound rock-bottom business which will lead to far greater cargo and freight volume. And it's well on the way.

Airlift Takes Over

PARIS—If there is any truly international air show in the world, it is in Paris every second year. The 23rd such salon has just been held and as air shows go, it was quite the usual success.

But what a change has taken place through the years! Bombers, the queens of the air for twenty years, have all but disappeared as show attractions. Fighters (and there were no new ones to be seen) drew but scant attention except in precision flying. The limelight was unquestionably held by *airlift* vehicles—transport, cargo, business, and helicopters.

Of course there was a new and larger section for missiles, those weird metallic symbols of the cosmic age, meaningful enough to scientists, engineers and military experts, but getting no more than passing glances from the bulk of those attending the show.

American static displays were greater than in the past, those of the British were smaller. More parts and accessories were displayed in trade show manner but whether buyer-and-seller benefits outweighed the literature and souvenir marauding by children and public remains the eternal question for all such exhibitions designed for both public and industry.

But the Paris show did demonstrate that useful airlift vehicles which carry people and things have taken over the major interest and space. Unglamorous missiles offer only sterile substitution for new high performance fighters and bombers which were so exciting during the pre-missile evolution of man's reach into space.

Wayne W. Parrish

To better serve aviation, power plants and general industry ...four fast-growing corporations merge July 1, 1959

Prat-Daniel Corporation (Established 1924), The Thermix Corporation (1941), The Aerotec Corporation (1942) and The Aerotherm Corporation (1950) are known and respected internationally for their engineering and manufacturing skills.

On July 1 they formed a new, integrated corporation, Aerotec Industries, Inc. — having carefully studied the advantages of centralizing management and consolidating their financial and manufacturing resources. Management of the new organization remains in the hands of the experienced executives of the merging companies.

The new Aerotec Industries, Inc. has three divisions:

The **Aircraft Equipment Division,** Greenwich, Conn., designs, produces and sells a wide range of controls for aircraft, missiles and nuclear applications.

The **Aerotherm Division,** Bantam, Conn., develops, fabricates and sells aircraft seating and accessories.

The **Industrial Division** engineers, manufactures and sells electrical precipitators and mechanical dust collectors for flyash and industrial applications, as well as air preheaters, curtain dampers, blowers and fan-stacks. Its facilities include a plant in Greenwich, Conn., and the Prat-Daniel plant in South Norwalk, Conn.

An expanded and intensified program is now underway to accelerate research, new developments and technical advances that will benefit you. If you have any problems or requirements in the above fields our engineers are ready to help solve them.

Write Aerotec Industries, Inc., Dept.-F, Greenwich, Conn.

AIRCRAFT SEATS

FLOAT SWITCHES

PRESSURE SWITCHES

AIRCRAFT VALVES

FAN-STACKS

AIR PREHEATERS

CURTAIN DAMPERS

MECHANICAL DUST COLLECTORS

INTEGRAL DUST COLLECTORS

ELECTRICAL PRECIPITATORS

SERIES DUST COLLECTORS

BLOWERS

Circle No. A on Reader Service Card.

On Management Oversight

To the Editor:

AIRLIFT has had some articles on the great new age which is rapidly dawning; all your publications seem to reflect the growth and optimism of this air transport industry.

My company is good, alert to new ideas, leader in new services and equipment, and well thought of in many financial circles.

Management has hired the finest of advertising and public relations talent. It sincerely desires to make the best possible public impression.

Yet we seem to offer less than we promise. You can have one good trip with us, but not a series of 10 consistently good trips. We mean well, but so often we fail to follow through. Why?

Because in the jet age when qualified and trained people are the key to success, we have not yet learned the value of initiative and experience.

The easy way out is to blame unions, but the indifferent and incompetent employe who feels that he has a sinecure on his job is the result, and not the cause.

We lose the best and collect the mediocre because, to our cost conscious management, personnel are figures on a balance sheet subject to reduction or increase by mathematical formula.

Clerical personnel, the vital key to success, are hired haphazardly without regard to that most important of processes, classification and screening.

Untrained, except for uncoordinated local efforts, the airline loses the best, and through attrition and rigid union seniority retains a hard core of the worst elements, the people who create labor unrest.

Management could still lead, but instead fails in the vital individual recognition through no service rewards, few house publications, and no effective personnel selection policies for promotion and advancement. The result is indifference and worse.

So the next time we mishandle your bag or your reservation, and the beautiful advertising copy turns sour in your mind, there is a reason.

We still have people with the spark that created a big and a fine company. Perhaps the persons who read this letter will come to the conclusion that people have value.

Name withheld by request

Credit for Harry Mitchell

To the Editor:

General Aircraft began in 1939 as a triumvirate. For some reason which was without a doubt unintentional, your article "Small Parts Can Lead to Big Business" (*AIRLIFT*, June), did not mention an important "cog" in the General Aircraft team . . . Harry L. Mitchell.

The original triumvirate which organized General Aircraft was Peter Altman, Harry Mitchell and myself. Mitch was, in reality, more than one of the organizing officers. He was, in fact, the only full-time officer of the corporation, since I was still attending classes during 1939 and '40, and did not report until the "swing shift." In those days, our hours were 8 a.m. 'til midnight and later.

Today, after 20 years of business association, Mitch and one of our newer officers, John S. Hammond (corporate secretary since 1951) still conduct business in about the same way, with impromptu meetings during lunch and dinner or while we are driving or flying.

LAWRENCE F. ZYGMUNT, President
General Aircraft Supply Corp.
Detroit 13, Mich.

Clarifying the Confusion

To the Editor:

Your biased, unfair criticism of MATS on a continuing basis in both editorials and reader articles is a well established fact.

And now in the May issue you've permitted it to be called the USAF's Military Air Transport Service. It's pretty well known that MATS is a joint USAF-Navy effort within the Defense Department setup.

Let's understand it before we criticize it.

Capt. R. T. DEVOE
Southern Rescue Coordination Center
Headquarters Tenth Air Force
Dallas Naval Air Station, Texas

ED. NOTE: *Somewhere, somehow, somebody must have changed things! Just to make sure our reference wasn't off base we checked the Pentagon. The reply: "Absolutely, MATS is one of the major commands in the Air Force and the commander of MATS reports to the Chief of Staff, USAF."*

Airlift at its Best

TO THE EDITOR:

YOUR MASS CARGO BREAK-THROUGH STORY IN JUNE ISSUE IS AVIATION REPORTING AT ITS BEST. I KNOW IT WILL BE HAILED WITH ENTHUSIASM BY THE MANY PEOPLE THROUGHOUT THE WORLD WHO HAVE WORKED SO HARD TO DEVELOP AIR FREIGHT INTO A FULL FLEDGED INDUSTRY.
RAYMOND A. NORDEN, PRESIDENT
SEABOARD & WESTERN AIRLINES
NEW YORK, N.Y.

Data Cards, Tremendous Help

To the Editor:

We wish to receive copies of all the aircraft data cards that have been published to date and will appreciate your advising us.

Since we are in the business of building jet engine test stands as well as sound suppression equipment, the configurations are of tremendous use in our sales and engineering departments.

E. L. MAGUIRE
Kittell-Lacy, Inc.
El Monte, Calif.

Eagle Gets an OK

To the Editor:

I have only just seen the April issue of *AIRLIFT* and read the very interesting article on page 33 by Anthony Vandyk on British Independent Airlines.

I feel I must draw your attention to a statement in the paragraph on low fare Colonial Coach Class services to the effect that our application for permission to operate such routes at 50% lower than the present fares has been turned down.

This is not true. The facts are that we have received local approval in Aden, Hong Kong and Malta for the services, that we are awaiting decisions from the other local points involved and the whole project is still before the British Minister of Transport and Civil Aviation in London for his consideration.

We hope to get favorable news shortly which, I think you will agree, is an entirely different situation to that indicated in your article.

G. W. PITT
Eagle Aviation Ltd.
London, England

When & Where

JULY

July 14-15—Airlines Electronic Engineering Committee, Ambassador Hotel, Los Angeles.
July 15—Air Transport Assn., Public Affairs Committee, Statler Hilton Hotel, Los Angeles.
July 16-17—Radio Technical Commission for Aeronautics Assembly, Ambassador Hotel, Los Angeles.
July 28-30—Air Cargo, Inc. annual airfreight cartage convention, Chicago.
July 28-31—Assn. of Local and Territorial Airlines, quarterly regional meeting, Anchorage and Fairbanks, Alaska.

AUGUST

Aug. 10-14—National Flying Farmers Assn., 14th annual convention, Colorado State University, Fort Collins, Colo.
Aug. 18-21—Institute of Radio Engineers, western electronic show and convention, Cow Palace, San Francisco.

SEPTEMBER

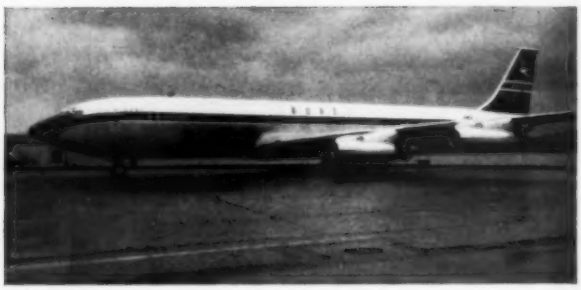
Sept. 2—International Civil Aviation Organization, Meteorology Div., 5th session, Montreal.
Sept. 3-6—Air Force Assn., convention and panorama, Miami Beach, Fla. (Make reservations with AFA Housing Bureau, P. O. Box 1500, Miami Beach, Fla.)
Sept. 5—Federal Aviation Commission assembly, Swiss Transport House, Lucerne, Switzerland.
Sept. 7-13—Society of British Aircraft Constructors, annual flying display and exhibition, Farnborough, Hants, England.
Sept. 14-19—International Agricultural Aviation Conference, College of Aeronautics, Cranfield, England.
Sept. 22—International Air Transport Assn., 1959 fall conference, Honolulu.
Sept. 23-24—Airwork Corp., engine and operations symposium, Millville, N.J.
Sept. 30-Oct. 2—Southeastern Airport Managers Assn., Durham, N.C.

OCTOBER

Oct. 5-10—Society of Automotive Engineers, national aeronautics meeting, aircraft manufacturing forum and aircraft engineering display, Ambassador Hotel, Los Angeles.
Oct. 6-8—National Airports Conference, co-sponsored by American Assn. of Airport Executives and University of Oklahoma, Norman, Okla.
Oct. 7-10—Air Traffic Control Assn., annual meeting, Biltmore Hotel, Oklahoma City.
Oct. 12—International Air Transport Assn., 15th annual general meeting, Tokyo.
Oct. 12-14—National Assn. of State Aviation Officials, Mark Hopkins Hotel, San Francisco.
Oct. 20-22—Air Transport Assn., engineering and maintenance annual meeting, Hotel Monteleone, New Orleans.

NOVEMBER

Nov. 18-19—Airlines Electronic Engineering Committee, Hotel Statler, Dallas.
Nov. 18-20—Vickers Aircraft Hydraulics Conference, Park Shelton Hotel, Detroit.



Fifty-nine 707s rolled out for seven airlines

Fifty-nine Boeing 707 jetliners, bearing the colors of seven famous airlines have rolled out of Boeing's Renton, Washington, plant. Nearly 40 have been delivered. In all, 190 Boeing 707s and 720s have been ordered by 16 airlines and by MATS.

Already, 707s are in scheduled service by Pan American, American, T.W.A. and Continental airlines. Soon Qantas will begin 707 operations. Deliveries, later this year, will be made to Braniff, B.O.A.C., Air France and Sabena.

707s are also in production for Air India, Cubana, Lufthansa, South African Airways and Varig. In addition, 720s are on order for American, United and Irish airlines.

Since going into service last October, the 707 has attracted the highest load-factors of any airliner in aviation history. These range from 90 to 95% and indicate the unparalleled profit potential of Boeing jetliners.

Currently, 707s are carrying more than 3500 passengers a day. Already more than 350,000 air travelers have flown aboard the 707.

Boeing jetliners now in scheduled service are demonstrating tremendous earning power, extremely high initial utilization and unprecedented public acceptance.

BOEING 707 and 720

• **Jet speed is wonderful.** When TWA's nonstop Philadelphia-Los Angeles piston-engined flight departed at noon, a passenger left her coat behind in the terminal. The garment was flown to Baltimore via Eastern, and put aboard TWA's nonstop jet leaving at 3 p.m. When the lady deplaned at 6 p.m., her coat was waiting for her.

• **There are lots** of supposedly tried-and-true methods of measuring the effectiveness of advertising, but Pan American claims it has a new one—the "subway advertising pilfer rating." New York Subways Advertising Co. says that the number of copies of a recent PAA ad that were stolen from trains set a new record. Ad featured a beautiful picture of Castle Neuschwanstein. The Boeing 707 Jet Clipper ad was popular, too. Riders pilfered 300.

• **Emery Air Freight Corp.** tells us that it has an assistant vice president, Bernie Bruen, who heads the "all-hell-breaks-loose" department. It's his job to find, in a hurry, a plane that can be chartered whenever a customer has a shipment that just can't be moved any other way. Bernie, we're told, handles these hectic situations calmly. Only once has he lost his aplomb. The phone call was from Jack Bascom, Emery's Chicago manager.

"Bruen, I need help. Got a big steel outfit on my back. Need a charter from the West Coast to Chicago, fast."

"Will do," replied Bruen, calmly. "What have you got that's so hot?"

"A screw and a bolt, needed as replacement parts in a rolling mill," said Bascom.

"You off your rocker?" asked Bruen, excitedly. "Charter a plane for screw and a bolt from the West Coast to Chicago? Did you think of trying the local hardware store? They sell those things in cellophane packages."

"Hold it, Bernie," said Bascom, calmly. "You can't get *this* screw and bolt in a hardware. The screw is 16 ft. long, 3 ft. wide and 3 ft. high when crated. And it weighs 12,980 lbs. The nut—just the nut for the bolt—is over 4 ft. square when crated and weighs 5,080 lbs. Every man in that mill gets $24 a day, even when he doesn't work. There are a lot of men in that mill and they're not working right now and won't be working until we cut this conversation, find that charter and get this little screw and bolt in here. Got it?"

Bruen, meekly: "Got it. One airplane, large type, coming up."

• **A finance company called** FAA's general safety division office in Fresno to request the government agency to impound a plane the company was financing. Seems the customer had flown to Las Vegas and was "losing." And the finance official thought the FAA, if it could take action with respect to a lost pilot, should also be able to help with one that was "losing."

• **When Western Air Lines** inaugurated service to Calgary June 1, it flew a group of prominent bankers, industrialists and civic leaders from many parts of the West to Calgary for a week-long de luxe tour of the oil/wheat province of Alberta, including a bus-train tour to Banff, Lake Louise and Jasper National Park.

Somebody in WAL had the fine idea of chartering three cars from Canadian National Railways to hook on to a regular schedule from Jasper to Edmonton. But when WAL tried to negotiate for the cars it found that this was a brand new idea for CNR. The airline men found themselves talking a different language from the railroad lingo, neither side getting anywhere. Finally, WAL sent Art Smith, director of sales administration and a former Union Pacific man, to talk railroad lingo with CNR. Where others had failed, Art succeeded. A fine charter deal was worked out which fitted CNR's traditional methods, a diner and two coaches were obtained, and the WAL guests had a fine time railroading into Edmonton.

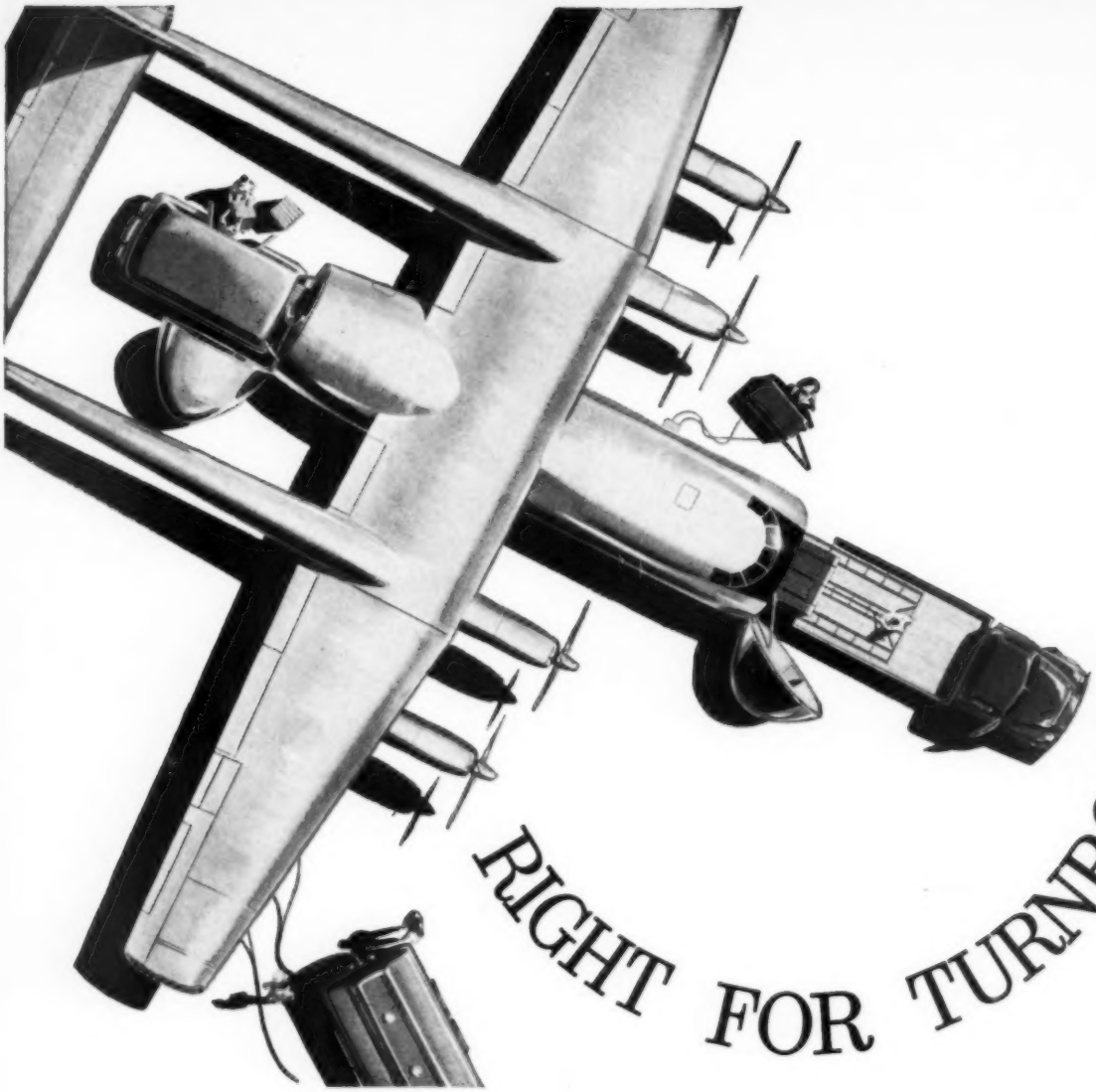
• **Returning from a flight,** the pilot entered on the squawk sheet: "Something loose in the tail." Next morning, he found the following reassuring note: "Something loose in tail tightened." (Flight Safety Foundation, which reported this item, added: "Brevity is fine, but explicits elicit more efficient fix-it.")

• **Big topic of conversation** on Continental Air Lines' inaugural Chicago-Los Angeles Boeing 707 flight was the "director of passenger service," who collects and sells tickets on the plane (*AIRLIFT*, June). Tickets aren't collected on the ground; if you don't have one, you buy it aboard. The system worked smoothly. The director goes down the aisle with a ticket cart, completes the job in about an hour (American, TWA and United all had "observers" aboard CAL the first week, checking). Incidentally, if a passenger boarded without a ticket, then refused to pay, he'd be guilty of fraud in interstate commerce, and the FBI is called in . . .

Hull insurance on CAL's Boeing costs $7 per $100, works out to about $1,000 a day . . . Depreciation runs another $1,000 daily . . . Answer is to keep 'em flying—when CAL gets a couple more planes, it plans daily utilization of 11 hrs. 17 min. per plane . . . needs a 44% load factor to cover direct and indirect Boeing costs . . .

Allegheny Airlines Transplants the Hibiscus

Something new in airline exterior markings made its debut this month as Allegheny Airlines began its trial operation of Napier Eland powered Convair 540 in service between Pittsburgh, Atlantic City, Wildwood, Cape May and Washington. The decoration on the tail is a giant fuschia and gold hibiscus. Inside the cabin will be a Hawaiian guest hostess, who will serve "exotic" fruit juices. The explanation: Allegheny's cooperation with Hawaii's Visitors Bureau to promote travel to the Pacific Islands.



RIGHT FOR TURNROUND

BIG FORE-AND-AFT DOORS AT PERFECT LOADING HEIGHT ENABLE THE ARGOSY TO LOAD AND UNLOAD WHOLE CARGOES IN UNDER 20 MINUTES

The less you handle cargo the cheaper the transport operation. This is true particularly of air freight where quick turnround is essential if costs are to be kept to a minimum. With the Argosy (AW650) a loading system is being developed that will enable the huge freight hold to be cleared and filled again in a few minutes. With full-width doors at either end of the fuselage, the load can be discharged at one end while new cargo is being loaded at the other.

High pressure refuelling ensures that a turnround can be completed in under 20 minutes. If the Argosy is used for mixed traffic—a role for which it is particularly suited—passenger and freight loading take place simultaneously.

The use of well proven components, particularly the Rolls-Royce Dart prop-jets, promise exceptional utilisation for round-the-clock operations.

PERFORMANCE

POWERED BY 4 ROLLS-ROYCE DART PROP-JETS

AIRCRAFT CRUISING SPEED: (14,000 r.p.m.) 296 m.p.h.
MAXIMUM PAYLOAD: 27,000 lb.
RANGE WITH FULL FUEL RESERVES AND 20,000 lb. PAYLOAD: 1,000 st.m.
SIZE OF HOLD: 46 ft. 8 in. (14.23 m.) x 10 ft. (3.05 m.)
FLOOR AREA: 426 sq. ft. (39.6 sq. m.)

THE ***Argosy*** BRINGS THE COST OF AIR FREIGHT DOWN TO EARTH

DESIGNED AND BUILT FOR THE HAWKER SIDDELEY AVIATION DIVISION BY SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT LTD

Circle No. 4 on Reader Service Card.

Pure Cargo Plane Preferred

Planes designed from scratch for most efficient cargo purposes will get preferential treatment in whatever form of federal aid is given to push cargo development. Conversions of passenger planes—except for piston-engined fleets for interim use—won't get favored treatment, if government planners have their way.

Trunkline traffic in May was a substantial 16.4% ahead of the same 1958 month, was up slightly (1.3%) over April, 1959. The 2.28 billion passenger-miles weren't far short of the all-time record of 2.38 billion set last August. Available seat-miles totaled 3.8 billion, up 8.7% over a year ago, 2.4% above April. Load factor was 60.09%, or 3.96 points higher than last year, less than a point under April. Traffic continued to boom in June.

Reaction to Airport Bill

Here's reaction of airport officials to the two-year stopgap federal aid airport bill that passed Congress and was on the President's desk at presstime (see News Highlights): Funds voted are inadequate, but at least Congress is willing to continue the airport program. Two-year extension gives no time for planning, no time to cut through local red tape and get matching funds.

Controversial Tokyo stop will be approved for British Overseas Airways Corporation, insiders say. And British will loosen up on previous restrictions on U.S. carriers, including such spots as Hong Kong. CAB okayed Tokyo for BOAC, sent the case to the White House where the President is giving it "careful consideration."

Express Talks Expected Soon

Airlines are ready to talk with Railway Express Agency about a new air express contract, despite the agency's uncertain future. Chances are negotiations will start before mid-July; the contract expires July 31. A short-term extension may be considered. REA's directors rejected a proposed reorganization plan, have been considering a second proposal. Some railroads still say they'll withdraw support of REA next year. Airlines are studying other ways to handle express traffic, just in case.

Judgeship for CAB Chairman James R. Durfee is still planned, definitely, for confirmation at this session of Congress. In the same package will be replacement for member Harmar Denny, who will manage a fund-raising association in Pittsburgh this fall.

FAA's Field Staff Passes the Buck

Pass-the-buck attitude of FAA field personnel has slowed down airline service testing of equipment to cure operating problems. Reason: new "get tough" policy of FAA has field agents apprehensive about assuming any responsibility on their own. Result: carriers are being told to "get manufacturer's approval" before testing any fix.

Major management changes in BOAC are not far off. Two top officials are ailing and one of these is nearing retirement age.

Reds' TU-114 Makes An Appearance

Much-touted Soviet TU-114 four-engined turboprop finally made an appearance the last two days of the Paris air show but failed to participate in the flying demonstration. But the Soviets let the public pass through the 155-seat deluxe version. Only the TU-104B and the IL-18 turboprop flew in the show. Visitors were impressed by the improved decor and size of the TU-114, but that's about all.

How big is the air cargo future? Here's what a high federal official is thinking: If 100 of the most efficient cargo planes that could be designed and built (larger than the DC-7) were each used 10 hours daily with 100% load factor, the fleet would be able to haul only four one-hundredths of 1% of existing domestic freight tonnage. If 1,000 of these planes were used, they could handle only four-tenths of 1% of existing freight. Granted that the bulk of U.S. freight is not capable of being carried by air (coal, oil, etc.), even a very small 1% of total tonnage would provide an enormous potential for the air transport industry. This is the kind of thinking that's behind the present Administration and Congressional push for cargo plane development.

Big Jet Load Factors Continue

Passengers still flock to jets and turboprops. American Airlines in first 25 days of June had load factor of better than 95% on Boeing 707s, above 90% on Lockheed Electras. AA's 707s were carrying 2,000 passengers daily on 22 flights linking seven cities.

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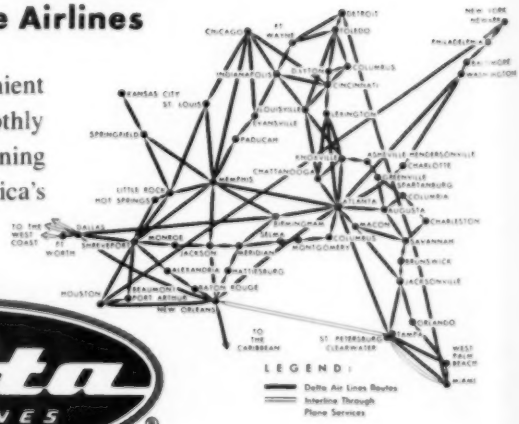
Passengers, coming and going, will find these are convenient connections, too—timed to speed them on their way smoothly and pleasantly. It's another example of thoughtful planning ahead, for each passenger's comfort, by Delta, one of America's pioneer scheduled airlines.



*Connections available via American — National — Delta Air Lines through-plane interchange service.

Delta AIR LINES

General Offices: Atlanta Airport, Atlanta, Georgia

Circle No. 13 on Reader Service Card.

Stopgap Airport Bill Passed

A sharply reduced stopgap federal aid airport program finally passed Congress and was sent to the President. It is merely an extension of current Federal Airport Act provisions for two years at the present $63 million annual level, with no change in FAA's 25% discretionary fund. Obvious "frills," such as bars and game rooms, are not covered, but any terminal facilities that contribute to health, comfort and convenience are eligible for federal funds. Seal coating at small airports was eliminated.

White House insistence that cities must bear the burden of providing airport facilities was a major reason why House and Senate were unable to agree on bigger expenditures. Senate had wanted $100 million a year for four years plus $65 million discretionary; House asked $297 million in four years, including $45 million discretionary. Administration favored four-year $200 million plan, 50% discretionary.

NEA to Lease TWA Jets

To meet competition on the Florida route, Northeast Airlines plans to lease Boeing 707s from TWA for the Sept. 1-May 1 period. National will again lease 707s from Pan American for the route, and Eastern expects delivery of DC-8s for the winter season.

Initially, TWA will provide planes, crews, fuel, maintenance and insurance, but NEA crews are expected to take over in late February. NEA will start with one roundtrip, later increasing to three. It will pay TWA $3.10 per revenue plane mile, or $6,776.60 for an Idlewild-Miami roundtrip. TWA will also receive 50% of gross passenger revenues in excess of $4.50 per revenue plane mile but less than $5.30, and 25% of gross over $5.30. Contract is not yet signed. CAB must approve the deal.

Reaction to CAB Fare Recommendations

CAB Examiner Ralph Wiser's recommendations in the three-year-old General Passenger Fare Investigation are a "significant contribution" and "ably presented," say the airlines, but they disagree with his figures.

Recommendations: Fares for trunklines be fixed at 12% above Feb. 10, 1958 (airlines had two increases since then, one of 6.6%, another of 3% or slightly over); that this be accomplished by adding $1 to each ticket plus any small percentage needed to reach 12%; reasonable rate of return on investment is 10.25% for Big Four, 11.25% for others; depreciation should be seven years for piston planes and engines, 10 years for jets and turboprops, with 15% residual.

Airline reaction: Increase should be at least 15%; all except three lines say rate of return is not the best method of measuring risk; return on capital should be higher; depreciation findings were unsatisfactory.

CAB allowed airlines to extend existing fares to Dec. 31, 1959, so status quo can be maintained until final decision in the fare case. Oral argument will be held July 28-29.

C. R. Smith Analyzes the Jets

Jets such as the Boeing 707 are a little too large, and smaller planes and more of them will probably be used in the future on more frequent schedules, American Airlines president C. R. Smith said in Tulsa during dedication of AA's new jet maintenance base.

Commenting frankly on the first U.S. jet to enter service, Smith and other AA officials said the company was a little disappointed in the 707's cruising speed, which is about 15 mph below what was expected. Because of minor troubles with components, daily utilization has been slightly over six hours instead of an expected eight, and just less than half of scheduled departure times are being met. AA has been considering the possibility of using the 707 part-time as a night coach to increase utilization. There have been no major troubles with the plane, and AA probably won't even send it to Tulsa for the 2,500-hour airframe check, but will do the job at an end-line point.

Thomas Handles Airspace Problems

David D. Thomas, director of FAA's Bureau of Air Traffic Management, has been delegated authority by Administrator Quesada to handle all airspace matters. He is empowered to make, amend and issue rules, regulations and orders providing for use of airspace, and to grant exemptions.

More Jets Ordered

Orders for 12 more jet transports have been placed by three airlines. United Air Lines upped its order for the Boeing 720 intermediate jet from 11 to 18 at cost of $35 million, including spares. Planes will be powered by a newer, lighter version of the J57. UAL also plans conversion of at least six DC-7s to freighters. Douglas will do the $3 million job.

KLM ordered four more DC-8s, bringing its total to 12. Planes will be powered by Pratt & Whitney's JT3D turbofan, as will the last of the original eight. The other seven will have the JT4A. Civil Air Transport Ltd. ordered a Convair 880 for use on Far East routes.

Also on the equipment front, Quebecair, Canadian line, bought its third Fairchild F-27—the first reorder of the plane. Capital Airlines is taking a "very close look" at purchase of five or six Lockheed Electras.

Douglas Offers DC-9

The DC-9, four-engine short-to-medium range jet, can be delivered in early 1963 and production will start when orders for 75 to 100 are received, Douglas Aircraft said. The plane, seating 68 first-class or up to 92 coach, will be powered by Pratt & Whitney's JTF10A-1 turbofan, developing 8,250 pounds thrust. It will sell for slightly over $3 million. Specs: wing span, 94 ft.; length, 103 ft.; height, 34 ft.; maximum takeoff gross weight, 120,000 lbs.; range with full space-limited payload of 17,310 lbs., 2,270 miles; range with full weight-limited payload of 20,355 lbs., 1,980 miles; field length at maximum takeoff gross, 6,020 ft. at sea level.

First Order for S-61

First order for the commercial Sikorsky S-61 turbine-powered helicopter was placed by Chicago Helicopter Airways, which will get three in 1961. The S-61, a development of the Navy twin-engined HSS-2, will have three General Electric T58-6 engines and will carry 25 passengers. CHA is also adding three Bell 47G-2 Troopers to carry mail on its system.

Quesada, ALPA Clash

In a blunt letter, FAA Administrator E. R. Quesada refuted charges by ALPA president C. N. Sayen that FAA inspectors were using "gestapo" tactics in enforcing a regulation requiring pilots to be in the cockpit during flight. Sayen retorted that the letter was an "emotional diatribe."

Until better tools are developed to reduce near-misses, the "see and be seen" principle must be "rigorously applied and diligently enforced," Quesada said. If ALPA has complaints about FAA, these should be documented, he stated, adding: "You have employed invective in the absence of evidence . . . You have offered no evidence which would cause me to doubt (the inspectors') discretion or judgment." Passengers have the right to expect "full-time service" from pilots, he said.

Sayen said that Quesada "is attempting to mislead the public into thinking that all of their problems will be solved by reliance on the 'see and be seen' concept which every responsible individual in aviation concerned with safety has condemned as obsolete four and five years ago."

MATS Defends Its Position

Military Air Transport Service, under fire to turn more traffic over to civil carriers, claims "there is no more Department of Defense business at present." Lt. Gen. William Tunner, MATS chief, said: "Of course, MATS could fly its aircraft empty or with dummy loads as some outside of MATS have suggested." If this were done and all present business turned over to airlines, Defense Dept. airlift would cost $1 billion a year instead of the present one-quarter billion, he stated.

In fiscal 1955, civil lines did $4.5 million in business with MATS, flying 1.5% of all passenger-miles and 6.6% of cargo ton-miles, MATS said. Fiscal 1959 business totaled $70.8 million, with civil lines flying 40% of passengers and 7.4% of cargo.

NAL Plans Another Fare Cut

National Airlines, which recently cut New York-Miami night coach fares to 3.21¢ a mile three nights a week (*AIRLIFT*, June), now proposes to reduce the day coach rate on the route, including tax, by $10—making it about the same as rail coach. CAB must act on the tariff.

The new fare, planned for July 19, would be available everyday with 107-seat Super Constellations. Fare would be $45.45 one-way plus tax, against present $54.55. NAL also asked to extend the reduced night coach rate, effective Mondays through Wednesdays, to Thursdays. Load factor on the service has been about 85%.

FAA Proposes Pilots' Age Limit

FAA has proposed a rule that no individual who has reached his 60th birthday shall serve as pilot on any air carrier aircraft. Also, it said, a pilot shall not be in command of an air carrier turbojet plane if he has reached his 55th birthday, "unless he held an aircraft type rating for the particular aircraft either prior to such birthday or the effective date of this regulation."

Other FAA proposals: co-pilots be required to hold a type rating on the particular type of plane on which they are to serve; co-pilots be given a six-month proficiency check by a company check pilot or an FAA inspector. FAA will allow time for comment on the proposals.

Military Lift Awards Total $23 Million

Military airlift contracts totaling $23 million have been awarded by MATS to 10 civil carriers. Of the total, $20 million was for Logair, domestic airlift support program for USAF's Air Materiel Command. Awards: AAXICO, $9.7 million; Capitol Airways, $3.2 million; Slick Airways, $4.8 million; Resort, $2.4 million.

Six carriers got $3,041,007 for overseas passenger service July-September: Twentieth Century Airlines, $1,186,071; United States Overseas Airlines, $609,501; Alaska Airlines, $289,344; Transocean, $191,970; Hawaiian Airlines, $71,914; Flying Tigers, $692,208.

FAA Fines Pan Am, Lynch

Pan American World Airways and pilot Waldo Lynch were fined $2,000 as a result of the February Boeing 707 "dive" incident over the Atlantic. PAA was fined $1,000 for violating Civil Air Regulations by failing to keep a flight recorder in operation on the plane. Lynch's fine was $1,000 for failure to stay at the controls. FAA is processing action to suspend for six months the air transport rating of co-pilot S. T. Peters for "careless operation."

Meanwhile, CAB said it will be tougher on suspensions and revocations of pilots' certificates for violations of safety rules. First case resulted in 30-day suspension for a Mohawk pilot who did not fly at assigned altitude.

Briefs

Air charter exchange, called Volumair, which will serve as a central clearing house on availibility of planes for movement of passengers and cargo, is planned by scheduled airlines. Under the plan, subject to CAB approval, an airline that cannot furnish all space required in a charter request can use Volumair to query other lines on space and price. No planes will be assigned to Volumair.

U.S.-Mexico civil air agreement was extended for one year in its present form, following failure of the governments to agree on revisions. Negotiations will resume this fall. New efforts are being made by U.S. and France to agree on a bilateral to replace the one which ends July 24. Talks will be held in Paris.

Cuba's new government seized four airlines: Cubana, Aerovias "Q", Cuba Aeropostal and Expreso. All were charged with being owned by Batista officials.

Airline pilots should be selected to fly new planes on proficiency rather than seniority, Boeing's chief test pilot A. M. "Tex" Johnson told an IATA meeting. ALPA should not be an agency to "protect its less efficient members" and shouldn't enforce "feather-bedding," he said.

George McSherry, who was under fire on concession leases granted at Miami International Airport, was ousted as Dade County, Fla., port director. He was replaced, on a trial basis, by his assistant, Alan Stewart. McSherry said he had increased port revenue, and that changes he ordered in the airport terminal resulted in the airport coming out half a million dollars ahead this year.

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A STATEMENT TO THE AIRCRAFT INDUSTRY

You have probably read in recent press announcements that Hardman Tool and Engineering Company has been acquired by The Dayton Rubber Company.

This acquisition will provide Hardman greater strength to better serve the aircraft industry by increasing the scope of its operations in all of its divisions.

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Its ability to work with airlines in the design and manufacture of distinctive custom seating is reflected in its current major production. This includes seats for the Boeing 707, Lockheed Electra, F-27 Friendship, and other jet-age aircraft.

Whatever your seating problem, consult the leader. Hardman specialists may well have the solution you are seeking right now.

Most sincerely,

C. M. CHRISTIE, *President* The Dayton Rubber Company

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PLASTICS – Plastic laminate production of aircraft baggage and cargo handling equipment and related products.

GROUND HANDLING EQUIPMENT – Tow bars, loading ramp canopies, jet engine nacelle plugs, and other ground handling products.

PARTS & SERVICE – Hardman parts orders are filled promptly. Parts manuals issued on every new seat model. Modernization kits for older models. Field service representatives to serve you on engineering, sales, parts or maintenance problems.

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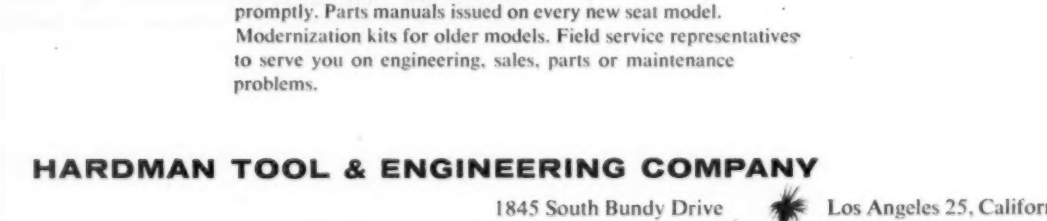

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Rail Mail Fadeout = Big Air Gain

Rail cutbacks will force switch to air as Post Office aims for next-day delivery of first-class letters

By ERIC BRAMLEY

A CRISIS IN MAIL TRANSPORTATION is approaching—rapidly.

One solution will be that much mail now traveling by surface will be switched to the most rapid means of transport—air. It will be big business for the airlines.

The Post Office's job of sending mail by rail is becoming harder. One mail-carrying train is being discontinued every day as the railroads continue to abandon unprofitable routes and schedules. The Post Office has turned to highway post offices and trucks in an attempt to solve some of its problems. In late 1953 it started the first-class mail by air experiment on selected routes.

A highly significant report was due on Postmaster General Arthur Summerfield's desk July 1—the PO transportation study prepared by Robert Heller & Associates, Cleveland consultants. When the PO ordered the study, it said the initial objective would be to "find ways and means to provide next day delivery of first-class mail, whenever practicable, and to improve the service and dependability of delivery for all other classes of mail."

With next day delivery the goal, a big expansion in air transport seems a certainty. There is no other choice.

The airlines want to haul first-class mail. They're certain they have the capacity, even now, to handle it easily. They don't want an expansion of the present experimental program—they want a nationwide, permanent plan.

One proposal is an "expedited" first-class mail plan—the movement of letters by the means of transportation that will secure the earliest possible delivery. One authoritative study shows that if such a program had been in effect in fiscal 1957 (latest figures available), the airlift of first-class mail would have been 156 million ton-miles.

This is almost twice the volume of air mail, including air parcel post, handled in that year, and is more than 10 times the first-class mail actually airlifted on experimental routes.

One PO official observes that to handle such increased volume successfully, the airlines must do three things: (1) operate many more flights at times when the PO really needs them, (2) stop changing schedules so frequently, (3) achieve better on-time performance.

Against the 156 million ton-miles that would have been available in 1957, the airlines had unused capacity of about 2.3 billion ton-miles. This, of course, was spread throughout the day—it was not necessarily available at hours when it would be needed by the PO. There is little doubt, however, that a "redistribution" of capacity could be arranged.

Expedited mail would mean the use of many more cargo aircraft. And the addition of cargo schedules to handle mail presents opportunities to sell and increase air freight. First-class mail won't make the trunk and local airlines rich (3.6¢ of their revenue dollar now comes from mail, 1.8¢ from subsidy) but the freight expansion possibilities offer a great revenue potential.

Revenuewise, 156 million ton-miles would have meant over $60 million to the airlines, at the 38.48¢ average ton-mile rate paid to trunks and local service lines. However, in an expedited program, the PO could be expected to insist on a lower rate. It pays 18¢ to 20¢ a ton-mile for the first-class mail by air experiment (space-available basis). Most airline mail experts say emphatically that this figure should be higher. Railroad mail rates, incidentally, have increased five times since the end of World War II.

What are the other potentials for the airlines beyond first-class mail? Here are the possibilities:

- **Second-class mail** that has a "time value"—newspapers and magazines. Potential here is 113 million ton-miles—and this may fly in the not-too-distant future.
- **Surface parcel post** under six pounds traveling over 300 miles shows a potential of 311 million pieces. At air parcel post rates, revenue would be $220 million.
- **All fourth-class mail** (parcel post) totals 1.8 *billion* ton-miles. Some experts suggest that the PO buy air freight space, at air freight tariffs, instead of footage in a rail storage car for this type of mail. This potential is *34 times* the current volume of air mail.

As the carriage of first-class mail by air—plus time value second-class and more parcel post—becomes big business, one big need must be met: more adequate postal facilities at airports. Because in 10 years the airport post office will be the important distribution center—not the post office that has traditionally been next to the railroad station.

THE SHIFT IN THE MAIL

Number of train mail routes
1929—1,460
1958—264

Annual miles of rail mail service
1929—572,328,000
1958—124,000,000

Mail truck routes
1951 (first year)—33 operating 2,300,000 miles yearly.
1958—656 operating 53,000,000 miles.

Ton-miles of air mail (not including first-class experiment)
1939—8,608,000
1958—89,223,000

Fifteen Answers on...

Air Union

By ANTHONY VANDYK

FOUR MAJOR EUROPEAN airlines have formed Air Union.

With a fleet of 300 planes and 35,000 employes, Air Union with its present members represents a formidable organization. If other carriers join, it might well dominate the international air transport industry.

What is Air Union? Why was it formed? How will it function? Will all personnel wear the same uniform? What about aircraft orders? Where will it operate?

Some questions can now be answered; others will await decisions of the Air Union planning committee.

• **What is Air Union?** It is a combine formed by Air France, Lufthansa, Sabena and Alitalia. The role of the members will be to produce ton-miles which will be sold to the organization. Afterwards, all revenues will be pooled and redistributed to the members according to the quota of ton-miles produced by each. Through Air Union, operating economies will be possible, and the members will be able to meet U.S. competition more effectively. The agreement is for 99 years.

• **When will it start?** April 1, 1960.

• **Where will it function?** In the international field—cabotage and colonial traffic are not included. First target for coordination of operations is North American services. The route to New York is the big revenue producer, brings in the dollars needed to pay for long-haul jet equipment on order. Initial step toward full coordination will be to adjust schedules to avoid unnecessary competition and to provide best utilization of aircraft. An important part of the Air Union idea is that one line can make aircraft available to another, and it is likely that such arrangements will be made to improve North Atlantic service.

• **Can other airlines join?** The organization's original name of Europair was changed to Air Union to indicate to carriers outside Europe that the door to participation is open. Another reason for the change was to avoid giving the impression that the group represented "the appendix of a political or regional union."

• **What are the quotas?** It was agreed that contributions each carrier will make to Air Union are based on the long-term expansion of the organization's business, and will be finally realized only when a fivefold expansion has been achieved (perhaps in 10-15 years). Then, quotas will be: Air France, 34%; Lufthansa, 30%; Alitalia, 26%; Sabena, 10%. These quotas are irrevocable. At present, Air France produces 50% of the total international traffic flown by the four members. Lufthansa produces 17%, Alitalia 15% and Sabena 18%.

• **What about aircraft purchases?** They will be made on a joint basis. First type will be medium jets which all four carriers need and which none has so far ordered. Long-haul jets have been ordered—Boeing 707s by Air France, Lufthansa and Sabena, Conway-powered DC-8s by Alitalia (same engine as used in Sabena's 707s. Air France and Lufthansa will have JT4s). Only one line, Air France, has ordered a small jet, the Caravelle, and it is possible that the other three will follow. Certainly there will be a large amount of pooled maintenance and overhaul.

• **Will there be joint ticket offices?** Ultimately. But existing offices will not be shut peremptorily. When leases expire and new accommodations are required, then consolidation will take place. In Geneva, for example, Air France needs a new office while Lufthansa has a temporary location and Alitalia has no street-level office at all. It is likely that the new office already selected by Air France will be a joint Air Union office serving all four carriers.

• **Are less personnel needed?** Inevitably, in consolidations of this type personnel reductions are involved. But indications are that there will be few, if any, actual dismissals. Attrition will take care of surplus personnel. In other words, hirings are likely to be few but firings even fewer. There is no doubt, however, that some officials will have to be prepared to take a number 2 position instead of number 1. Although these people may not have to take a salary cut, the loss of prestige will be a difficult psychological obstacle for many to overcome.

• **Will Air Union employes wear a common uniform?** No. The identity of member carriers will be preserved.

• **What about insignia on planes?** Aircraft will continue to be painted in the colors of each airline, although they will probably bear some Air Union symbol.

• **Will there be joint advertising?** Probably. Advertising expenditures are not likely to be reduced; funds will be used more efficiently. For example, instead of the four lines each taking a quarter-page ad in a newspaper, a joint one-page spread may be used.

• **Why didn't KLM join?** KLM was in on the original negotiations, but was unhappy that its quota would have been less than that of Air France or Lufthansa. KLM decided to quit when the other four carriers refused its proposal that, before the question of quotas was finally settled, the group should determine other points such as the structure of the organization, accounting methods to be used, traffic policy, voting rights, and establishment of a plan showing steps in the development of the shares of traffic in the various companies.

• **What about SAS and Swissair?** They concluded their own agreement last fall, involving cooperation in both commercial and technical fields and calling for maintenance and leasing of one another's aircraft. As a matter of fact, this agreement spurred the others into forming Air Union.

• **How will civil air agreements be handled?** There is no doubt that the nations that have Air Union airlines will tend to work together in negotiating new air transport agreements and revising existing ones. By bargaining jointly, they will be able to do much better for their carriers. Such negotiating tactics would obviously weaken the position of vulnerable nations such as The Netherlands, with a major airline dependent largely on fifth freedom traffic and with little to offer in the way of traffic rights compared to those that it seeks from other countries. In fact, the threat is such that the nation concerned might well urge its carrier to join even on terms that initially did not seem acceptable.

• **Does Air Union have officers?** It has a permanent secretariat in Paris. An executive committee is in charge of planning which will lead to formal introduction of operations. On this committee are the four chairmen and the four presidents of the members. Subcommittees have been named for planning, sales, technical and traffic policies. An economic committee is working on an accounting system for expenditures and profits. Another group is dealing with legal matters.

Should Airports Reap a Profit?

The answer is No! They are a *public* facility. They should aim to break even, says D. C. Meenan, United Air Lines official, in provocative Houston talk.

"Get more money—get the same rate they're paying in Utopia."

"Airport authorities certainly are not a panacea insofar as the local government, the public or the taxpayers are concerned."

"For each $100 million of 40-year (airport) revenue bonds . . . it is costing the air shipper and air traveler—the general public—approximately $25 million more than is necessary in fares and charges."

"It is basically unhealthy to have one-sided control in any phase of commerce. That was one of the reasons for adopting the Sherman Anti-Trust Act, and yet today an important element of commerce (air transport) is confronted with this very practical problem."

IN THESE BLUNT WORDS, D. C. Meenan, the vice president of facilities and property for United Air Lines, put airport officials on notice that the airlines are not at all happy with the new trends in airport management, rate making financing and a host of other developments.

The question: Do Meenan's charges reflect airline industry thinking or his own? Obviously it represents that of United. To quote a facilities official of another major carrier, "The industry backs him right down the line . . . 100%."

Point by point, here's how Meenan sized up the trends in airport administration and financing during the recent Jet Age Airport Conference in Houston:

Airport charges—Today the airlines pay $14.5 million in landing fees and another $20 million in rentals and depreciation. By 1961 the landing fees will jump to $35 million and other costs to $40 million.

But if every airport envisioned itself as another Idlewild and charged New York fees and rentals, it will cost the airlines a whopping $75 million more a year. Although this obviously is a case in the extreme, Meenan observes that airport managers are being pressed locally by city governments "to make the airlines pay more" or "to make a profit" rather than explore means to hold present levels and still break even. And there are no uniform standards, pricing formulas or even economic principles guiding airport administration activities.

A public facility—An airport is for all the people, a public nonprofit type of facility, says the UAL executive. This is basic to airline-airport relationships. But recently, this generally accepted concept is giving way to a creeping tendency toward profit and record-making in airport operation. The old guard is giving way to a new generation of capable and enthusiastic airport managers who are being pressured from above "to get more money—get the same rate they're paying in Utopia," and as a result they are not free to give complete consideration to the facts underlying costs and development.

Why a public facility? Meenan notes that both military and general aviation use airports, in fact general flying accounts for 50% more airport activity than scheduled airlines and with military added, they represent twice as much as all the airlines. As an example of the service of air transport to the public in general, he cites the recent $16 million loss to Miami's economy in a one-month shutdown of service of one airline.

If profits, what?—If airports were operated for profits, says Meenan, airline users could be forced to pay whatever the traffic would bear and the airport monopoly could be in a position of syphoning off unconscionable profits. "Fortunately, this is not the case and we trust it never will be . . . every effort should be made to make the public airport break even, including adequate reserves, but profits have no proper place in this picture."

Authorities are expensive—When the Port of New York Authority took over in 1947, it started a new trend in airport operation and certainly in the airline cost picture. Some carriers now pay three times more in landing fees, rentals and depreciation at Newark or Idlewild than they do at many airports with corresponding traffic volumes and which do not operate at a loss.

Why? Technically the PNYA is a nonprofit organization, but actually, as a public corporation, it works like any profit-making company and seeks a higher return on investment than normally expected for a public body. Its net available for reserves is comparable to a corporation's net profit. In 1958, PNYA's airport revenues exceeded expenses, including debt service, by some $10 million which was transferred to a general reserve fund. This may or may not be used for airport purposes.

The Port Authority's success, observes Meenan, speaks

A Case in Point: West Palm Beach

Within a matter of days of Meenan's sharp criticism of airport trends in Houston, Tex., six airlines were tasting an example of the airport rate pinch 956 miles away in West Palm Beach, Fla. There county commissioners voted to hike the landing fee from 2.5 to 10¢ per thousand lbs., highest in the state. Airlines fought for 5 to 6¢. Observed G. Wesley Channell, asst. v.p.—property and leases for Eastern Air Lines, the proposed budget has a "built-in" profit of $52,000. Said Delta's regional manager S. D. Dement, "We can't afford the 10¢ rate." Said the WPB county commissioners, "Let's follow the recommendations of our engineering consultants, Coverdale and Colpitts (New York)."

for itself. It operates good facilities but at a considerable premium to the airlines. If these same charges applied throughout the U.S., the airlines by 1961 would have to seek a $75 million increase in fares and cargo rates to hold their own. Nevertheless, he adds, some cities see an escape from financing problems via an authority "of some sort" all based on the record at PNYA. Once such an authority it set up, city officials have little actual control over how it does business.

A voice for airlines—In airport authority organization as it exists today, one of the prime parties of interest, the airlines, is given no representation on the governing board or in determining disposition of excess revenues. This is basically unsound.

"Taxation without representation" hasn't been talked of much in recent years, Meenan notes, but under (Airport) authority control, the airlines have no representation. If this grave omission were somehow corrected and communities continued to favor airport authorities, they might well hold the answer to many problems.

Airport financing—The recent trend toward revenue bond financing in lieu of general obligation bonds is not always a proper one for a growing industry like air transportation. Indenture terms are too restrictive. They limit freedom of action or expansion of the financial base. Costs are too high.

Should revenue bond financing continue, adds Meenan, airlines should be represented on governing boards. It is the credit of the airlines, reflected in airport leases, more than any other element, which supports the revenue bond issue.

Some objectionable practices—On the "inconceivable" list, Meenan cites the position taken by some communities that, although the federal government has seen fit to grant aid for national purposes, a charge can be made for such aid. Others set rates and charges without giving credit for revenues realized in operating the terminal. Still others feel they should charge higher fees simply because another city does. In summary, he concludes, the airlines are in the position of a "captive tenant having to negotiate with a landlord who may not wish to and therefore doesn't open all of his books for review . . . Assuming the airlines and airports cannot develop rules and regulations which are mutually acceptable . . . some method of arbitration should be employed so that the fellow who pays the bill, the airline, has a more receptive forum . . ."

One-sided publicity—As virtually captive tenants of airport management, carriers have little choice in many instances but to "go along with the deal." Although infrequent, there are instances when an airline would want to speak out, but can't due to repercussions they might suffer. The real answer in the long run is a stronger airline voice on the authority or commission.

A need for study—There is no easy or rapid answer, but the industry has reached a point where answers to basic issues must be determined. Some airline officials feel an impartial and objective study of the situation by an independent research agency would help . . . not to prove anyone right or wrong, but to place this phase of aviation's activity on a sound economic basis.

Meenan is confident FAA would support such a study, hopeful that airport operators would join in the program. "Certainly now is the time," the United v.p. warned, to find answers to our obvious problems rather than wait until it may be too late, as in the case of some of the commuter railroads.

The Great Used Transport *Mystery*

By BERNARD D. BROWN

EVER SINCE TURBINE TRANSPORTS began to fly the commercial airline routes in this country, people in and out of the industry have been asking the question: "What are they going to do with all those piston aircraft?"

With the introduction of jets into service, the question is no longer academic or rhetorical. It is here, large as life and twice as nasty . . . and the airlines are going to have to come up with some down-to-earth answers.

Recognizing the seriousness of the problem, a number of major airframe and engine builders, including Boeing, Lockheed, United Aircraft, General Electric, Allison Division of General Motors and two airlines, Pan American and Panagra, contributed cold cash to a study made by the Transportation Center of Northwestern University at Evanston, Ill.

There is no doubt whatever that such a study had to be undertaken by somebody, whether the research staff of a university, the government or the airlines. As a matter of fact, FAA Administrator Elwood R. Quesada, in his capacity as chairman of the Air Coordinating Committee, ordered a study of the problem last July. Results of that study have not yet been made public.

But the results of the year-long Northwestern University study were made public recently, and they burst upon the industry with all the effects of a time-bomb. The study, titled "Prices of Used Commercial Aircraft 1959-1965," made some blunt, unpalatable forecasts, most controversial of which was the following:

"The most recent models of four-engine turbo-compound aircraft, such as the DC-7, Super G and Starlines Constellations (L-1049G and L-1649) will diminish rapidly in price and will be phased out of airline service. **They may be at or near scrap values as early as the end of 1959, and will almost certainly fall to that level by late 1960.** The price of the Boeing Stratocruiser is expected to fall to scrap value in 1959."

A number of other conclusions of the Northwestern study drew fire from used aircraft dealers, but none raised so many hackles as this one. Barked Frederick B. Ayer, president of Frederick B. Ayer & Associates, New York, probably the largest used aircraft dealer in the world:

"Those people at Northwestern don't know what they're talking about! The prices they have forecast bear no earthly relation to actual values. It's as if they conducted a study about the weather, completely scientific and all that sort of thing, but just forgot to look out the window to see whether it was raining. It's one of those meaningless academic studies."

Ayer backed up his opinions with an offer.

"Tell you what I'll do," he said. "I'll write Northwestern an open purchase order right now for any airplane on their list except the Convair 240, which they have over-

priced, at the price they have stated. In every instance, I'll be able to sell the plane at a profit."

Ayer was particularly wrathful about the prediction that DC-7s, 7Bs and 7Cs will be selling at $160,000-$240,000 by the end of 1959. Right now, he said, a DC-7 in good condition will bring from $965,000 up to $1,200,000 and a DC-7C is worth up to $1,500,000. Northwestern says that within the next six months or so they'll be down to less than one-quarter that value.

Allen Barrie, director of aircraft sales for American Airlines, said the Northwestern study "doesn't reflect my experience with the market." He added: "It isn't realistic." Barrie is in charge of the airline's surplus aircraft disposal program.

William A. Sipprell, president of The Babb Co., which contributed data as well as what he described as a "small financial contribution" to the Northwestern study, agreed with Ayer, though in somewhat less emphatic terms.

"I protested against the release of this report," said Sipprell. "The forecasts, even the near-term forecasts, do not reflect the current status of the market. They have undervalued everything except one aircraft, the Convair 240. In general, the prices they have given are a long way off the mark.

"Let's take the case of the DC-3, for example. They say the actual scrap value of a DC-3 would be between $5,000 and $10,000. In reality, the price of a DC-3 today is about $50,000—and even granting that this is the peak of the season—probably won't change much before the end of 1959."

Another who disagreed sharply with forecasts made by Northwestern was Milton W. Arnold, president of the General Aircraft Leasing Co., a division of General Dynamics.

"All they had to do to check some of their findings," he said, "was to get in touch with airlines that have planes to sell, or lease, and ask them what prices they were asking. What they did was like someone conducting a survey of the steel industry but failing to send a questionnaire to U.S. Steel or Bethlehem!"

Arnold, formerly a vice president of the Air Transport Association, has had considerable experience in airline operations. Incidentally, ATA was one of the organizations that contributed data to the Northwestern study. Others were the CAA (now FAA), Allison, American Airlines, Boeing, Canadair, Convair, Delta Air Lines, Esso Export Corp., Lockheed, United Air Lines and United Aircraft. None of these organizations, of course, bears any responsibility for the findings.

A detailed analysis of the Northwestern study was given by Robert I. Helliesen, president of the Aircraft Exchange. Said Helliesen:

"The Northwestern Transportation Center study, though broad in scope, is superficial in analysis, a theoretical mathematical model in methodology, erroneous in assumptions, and misleading in conclusions. Such a study, if left unchallenged, could be harmful to both buyers and sellers, and consequently to the entire aviation industry."

"The report's conclusions for 1959 prices are right now being proven grossly invalid as to most aircraft types by the actual market," Helliesen declared.

In the face of this barrage of criticism, Dr. Stephen P. Sobotka, assistant director of research for the Transportation Center and project leader for this particular study, stood by his guns. He said that people who were criticizing his report "probably hadn't even read it" or, reading it, failed to understand it. He declared that the study was made thoroughly and with the cooperation of many persons in the airline and manufacturing fields, as well as in government agencies; that the characteristics of the airline industry had been carefully analyzed; that traffic forecasts used were the best available, obtained from three separate sources: (1) the Port of New York Authority, (2) Canadair Ltd. and (3) that based on Northwestern's own "mathematical model."

Dr. Sobotka said flatly that he expected the study to prove of considerable value and that current prices "are already tending in the direction of the predictions made."

Whether or not Northwestern's study is as far off the mark as its critics maintain, or whether the truth lies somewhere in between the statements of the authors of the report and its critics, only time will tell. But a comparison of current bid and asked prices on the Aircraft Exchange listing and the prices forecast by the Northwestern study shows some sharp, almost bewildering differences. Prices would have to fall precipitately between now and the end of the year, and continue falling rapidly in 1960, to bear out the predictions made by Dr. Sobotka & Co.

The more one studies the differences in prices forecast for the end of 1959 and those prevailing in the marketplace today, the more one is inclined to doubt the accuracy of the Northwestern projections. They seem to be saying that the bottom will fall out of the used aircraft market within the next six to nine months.

Whether the bottom will actually fall out . . . well, so far the majority doesn't think so, but the answer won't be long in coming.

THREE LOOKS AT THE MARKET

	Aircraft Exchange[1]		Northwestern[2]	Frederick B. Ayer[3]
	Bid	Asked		Low	High
Convair 240	$195,000	$259,000	$310,000	$225,000	$ 275,000
Convair 340	278,000	430,000	390,000	300,000	475,000
Convair 440	400,000	585,000	390,000	500,000	770,000
Lockheed 049	200,000	364,000	100,000	200,000	350,000
Lockheed 749	250,000	400,000	130,000	350,000	700,000
DC-3	65,000	75,000	Junk	40,000	60,000
DC-4/C54	188,000	230,000	120,000	100,000	275,000
DC-6	425,000	635,000	120,000	475,000	750,000
DC-6B	608,000	738,000	300,000	600,000	1,200,000

1. Average price (market quoted June 11, 1959.)
2. Transportation Center estimate.
3. Current used aircraft prices Ayer predicts will continue throughout 1959 with minor fluctuations.

Northwestern's Used Transport Prices, 1959-65
(In Thousands of Dollars)

	1959 Last Quarter	1960	1961	1962	1963	1964	1965
DC-3	b	b	b	b	b	b	b
CV-240	$310 ($260-360)	$300 ($250-350)	$300 ($220-370)	$260 ($200-330)	$240 ($180-300)	$200 ($150-250)	$170 ($130-210)
Martin	160 (130-190)	160 (130-190)	150 (120-190)	140 (100-180)	130 (100-160)	110 (80-140)	100 (75-125)
CV-340 CV-440	390 (320-450)	360 (300-420)	350 (260-430)	310 (240-390)	280 (210-350)	250 (180-310)	210 (160-260)
V-700	420 (350-490)	390 (320-450)	370 (280-460)	330 (250-420)	300 (230-380)	270 (200-330)	230 (170-290)
DC-4	120 (100-140)	100 (90-120)	90 (70-110)	80 (60-100)	80 (60-100)	80 (60-100)	70 (50-90)
L-049	100 (100-130)	b (70-110)	b	b	b	b	b
DC-6	120 (120-160)	b (80-130)	b	b	b	b	b
DC-6B	300 (300-400)	230 (230-310)	190 (190-290)	160 (160-240)	150 (150-230)	140 (140-210)	130 (130-200)
L-749	130 (130-170)	b (90-140)	b	b	b	b	b
L-1049	150 (150-200)	b (100-150)	b	b	b	b	b
DC-7, 7B 7C	b (160-240)	b	b	b	b	b	b
L-1049G L-1649	b (170-250)	b	b	b	b	b	b
B-377	b	b	b	b	b	b	b

NOTE 1—Basic price prediction is bold faced and estimated range is in parentheses.
NOTE 2—Symbol (b) indicates price estimate at scrap value; no ranges estimated after 1960 when basic estimate is scrap value.

Paris Air Show, 1959 Edition

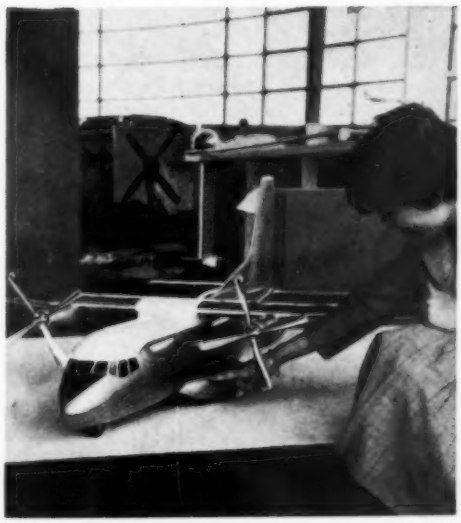
Paris—Europe's "cream" of international aviation events, the Salon Internationale de l'Aeronautique had its 23rd showing here last month. And by the sheer weight of "first appearances" of new aircraft, new engines, full-scale mockups—U.S., Russian, British, Canadian and French—the bi-annual event was a big success.

Here, in an exclusive pictorial report, *AIRLIFT's* photographer Réné Saint-Paul captures highlights of the Paris display. There were many others, first showings such as General Electric's aft-fan version of the CJ-805, Canadair's CL-44 swing-tail cargo transport, to mention a few. The Caravelle jet and huge 3200 Frelon transport helicopter, both built by Sud Aviation, led the contingent of French displays.

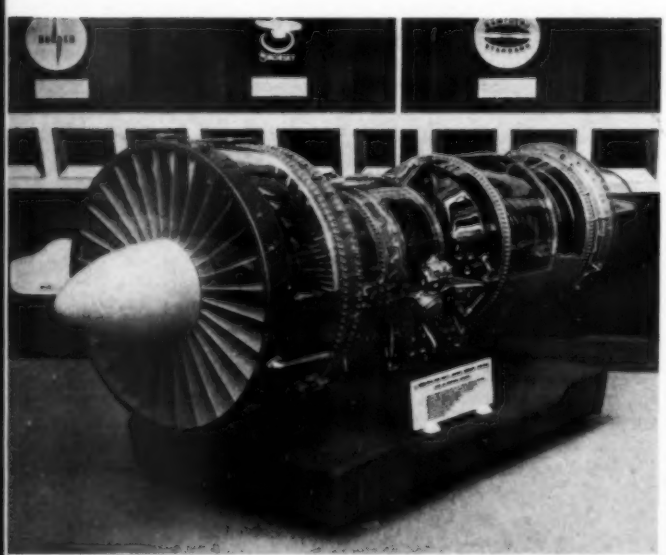
The big Russian contribution was the "free world" unveiling of the Ilyushin I1-18 Moskva, Soviet medium turboprop.

From the U.S., engines and helicopters displaced aircraft in hardware displays. Both Pratt & Whitney and General Electric took the opportunity to show their progress in turbofan engine development. Sikorsky shipped its full-scale mockup of the S-61 overseas for the event and Vertol came through with the flying prototype of its Model 107 transport helicopter.

From Britain came the Armstrong Whitworth Argosy in the colors of its first buyer—Riddle Airlines. In the "model" stage was the Avro 748 twin-turboprop feeder-line transport and Short Bros. and Harland's SC.5 Britannic.



Model of C 160 "Transall" exhibited by Nord Aviation, a joint Franco-German twin turboprop.



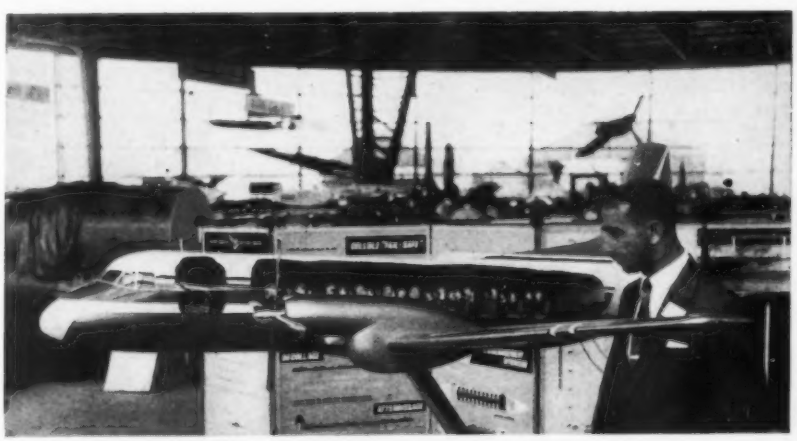
First European appearance of Pratt & Whitney's JT3D turbofan, ordered by KLM for DC-8s, was timed with Paris Show.

Fullscale model of Sikorsky S-61 was accepted as "the real thing." Exhibitor is James Patterson, United Aircraft Export Corp.

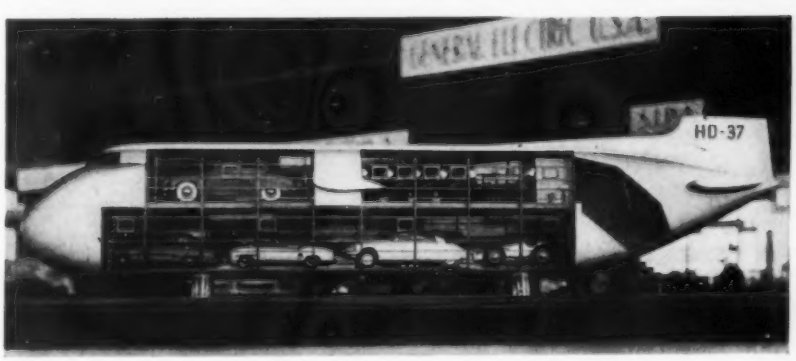
Prominent newcomer was Armstrong Whitworth Argosy in markings of Riddle Airlines.

Model of Short SC.5 Britannic was unveiled at Paris.

Ilyushin I1-18's first appearance outside Iron Curtain.



Avro 748 twin turboprop feeder line transport undergoes inspection by *AIRLIFT's* international editor Anthony Vandyk.



HD-37 freight transport project shown by Hurel Dubois uses fuselage of Breguet "Deux Ponts" with a Hurel Dubois wing.

17,000-lb THRUS

WITHOUT REHEAT

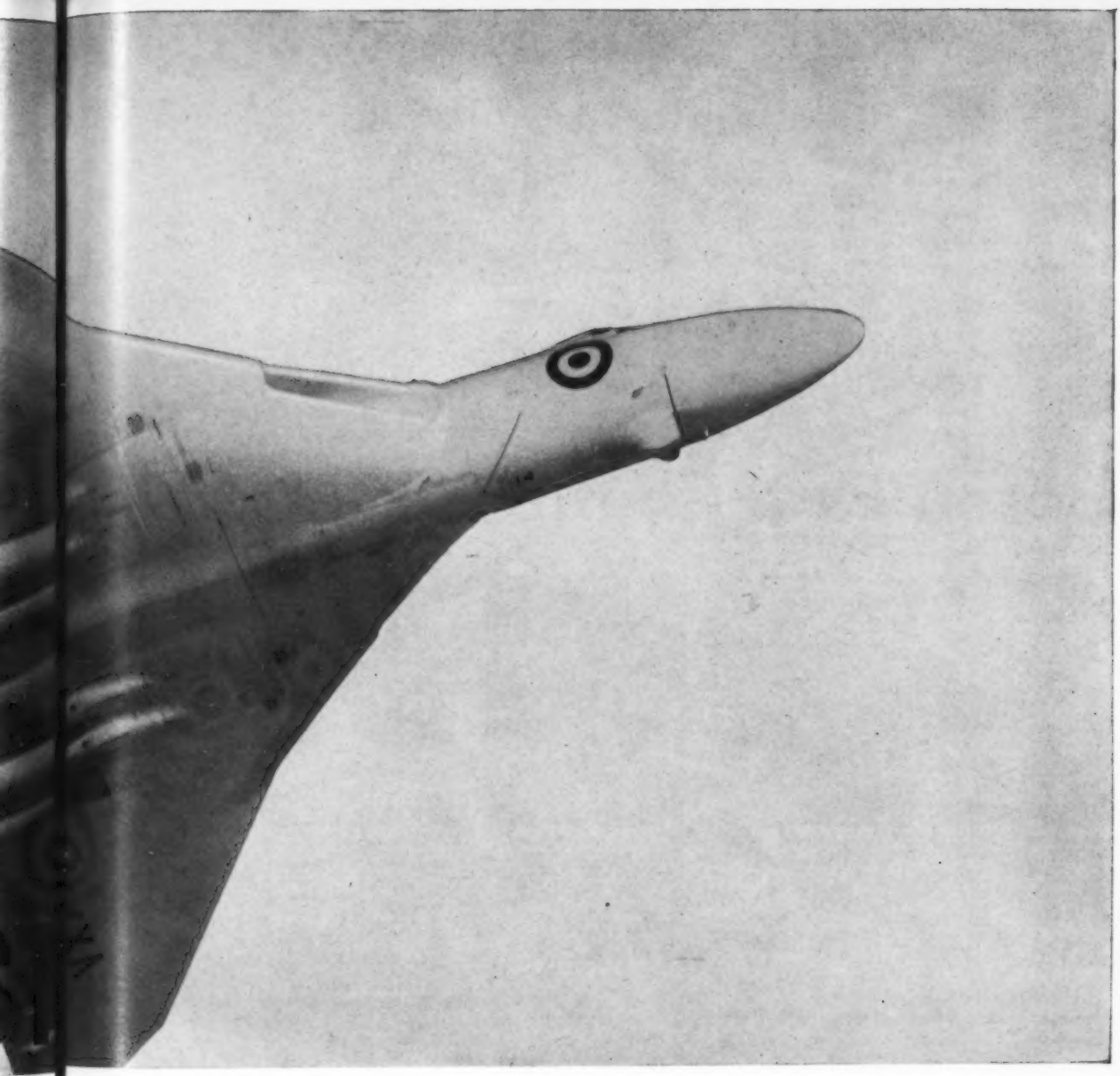
High-thrust version of Bristol Siddeley Olympus in production for Avro Vulcan Mk 2

During its two years in service with the Vulcan, the Olympus high-thrust turbojet engine has earned great praise from pilots and ground crews.

According to an official report, ". . . the Olympus sets a standard of handling at altitude which has never been equalled by any other turbine engine."

Pilots have frequently carried out "slam" accele tions and decelerations at the highest altitudes which the aircraft has flown—the exact height ca not be revealed, but is well over 50,000 ft.

In reliability, too, the Olympus has achieved unsurpassed standard. Only routine atte tion required between installation and removal for ov haul—snags have been held to an all-time low. U scheduled removal of engines has been remarkab



low, while overhaul life already compares favourably with other military powerplants.

Vulcans have made extensive overseas flights to many countries, including East Africa and Rhodesia, South America, Canada and the USA. Such was the confidence in the Olympus that, on the great majority of these flights, no provision was considered necessary for any engine spares whatsoever away from the aircraft's home base.

Continuing development, increasing thrust

First Vulcans went into service with the Olympus 101, rated at 11,000 lb. Later, in improved versions, thrust increased from 12,000 lb of the Mk 102 to an official type-test rating of 17,000 lb without reheat for the Olympus 201 in production for the Vulcan Mk 2. This engine, with Bristol Solar fully variable reheat, is running on the test bench at 24,000 lb—in still more advanced versions will be increased to around 30,000 lb.

Latest achievement in the Olympus story is its selection as powerplant for the new TSR-2 strike reconnaissance aircraft.

Bristol Siddeley

ENGINES LIMITED

CAB's Hector, a business man who has met a payroll.

Loosen Fare Controls: Hector

"No better way . . . than . . . profit incentive."

"Massive, gigantic systems of ratemaking . . .

"Enmeshed in a hopeless mass of decision-making."

"Frightened that ... competition might break out."

By WAYNE W. PARRISH

LOUIS J. HECTOR is an anachronism in bureaucratic government. He crusades for *less* regulation of industry.

He believes *competition* is the best regulator of airline fares. And he favors giving industry much more latitude in making its own decisions on what fares to charge and what services to offer. He even believes that *over-regulation* of fares by government may well be the cause of grave difficulties faced by all forms of transport in the U.S.

Only 41 years of age, and the youngest member of the Civil Aeronautics Board (he was appointed two years ago), Hector has not only distinguished himself with a growing number of hard-hitting dissents in fare decisions, but he has become a new and powerful intellectual force on the airline economic front. He is *one* CAB member who has been a business man and met a payroll.

Industry likes Hector's fresh and frank approaches to complicated fare and other regulatory problems. Industry may not always agree with him, but it respects him because he is intellectually honest. He has no political or other ties, he has independent resources to make his government service an end result and not just a means to an end, and he works very hard. He is regarded as one of the most dedicated men ever to serve on the CAB. He is a voracious reader and he has well-thought-out opinions on the broad field of transportation.

He's a maverick on the present five-man Board. He is usually voting alone or with not more than one other member. But he dosen't dissent just to be dissenting. He hopes one day to be in the majority when he swings others to his viewpoints.

The best summation of Hector's philosophy appeared in a speech he gave last autumn to the New York Society of Security Analysts. It was then, and is now, one of the most succinct appraisals of CAB's tasks on record.

In Hector's view, there are four duties which the government must always enforce under the statute. First, the carriers must give adequate service to all communities to which they are certificated; second, carriers must not charge rates which are discriminatory or preferential; third, carriers must not engage in unfair competitive practices; and fourth, carriers must not charge rates which are unjust and unreasonable, or in other words, rates which are unfair to the traveling public.

Each of these is the type of duty customarily imposed upon a public utility by law and policed by a regulatory agency, he points out. But beyond this, Hector strikes out on his own with some sharp observations:

"It is my firm belief, however, that the amount of detailed government regulation of the airline industry re-

quired in the public interest is in almost exact inverse proportion to the amount of inter-carrier competition within the industry.

"Massive, gigantic complicated systems of rate-making and control may well be part of the reason for some of the grave difficulties of other forms of transportation within the United States.

"The effort to protect one type of transportation from the competition of other types; the tendency to protect the inefficient operator from the efficient operator; the desire to fit all rate patterns into a preconceived plan; the tendency to discourage promotional fares and discounts as technically discriminatory—all of these are substitutes for the play of competitive forces.

"Whenever I hear someone suggest that we put tight floors under airline fares, the thought immediately occurs to me that tight regulatory price floors are almost inevitably followed by tight price ceilings.

"Many spokesmen for the trunklines have pleaded in various rate cases that they should be subject to less rate control because they are now competitive. In a general way I agree with this argument, but I think the argument must be pushed through to its logical conclusion.

"A carrier cannot argue for freedom from rate-making one day and come running to the Board the next because one of its competitors has lowered fares or introduced a new, more comfortable type of service.

"Government regulation in the public interest is not a one-way street. Controls cannot be relaxed just in the interests of the industry or any particular section of it. They can be relaxed only if competition increases sufficiently to insure that the public interest will be fully protected by the forces of competition rather than by detailed government regulation."

That is typical Hector philosophy, the thinking of perhaps the most logical and original mind on the CAB. But it is through the medium of Board decisions, in which usually Hector finds himself as a dissenter in whole or in part, when his ideas really sparkle. (See Box.)

He believes the experience and judgment of management should have as much free play as possible in the public interest. Hector is a great advocate of experimentation.

He favors low fares, but is not a blind unswerving adherent as is one of his colleagues, Joseph Minetti. He can favor high fares, too, as he did in the American Airlines proposal for a jet surcharge. His colleagues voted to okay a surcharge on first class fares but not on coach seats, and this, to Hector, was completely illogical.

Not only on fares has Hector made his mark. He has firm and new ideas on many other phases of regulatory procedures. In the next several years these other ideas will be taking shape into a tangible concept of transportation regulation.

Who is this man Hector? He hails from Miami, Florida, where his family has been in the seed business for a long time. He is a lawyer and a member of both the Florida and the District of Columbia bar. He has been an attorney in the Department of Justice.

Noteworthy, perhaps, is the fact that he is the best educated member of the Board. He has studied at Williams, Harvard, Yale, and Oxford. He is a Phi Beta Kappa, and considers himself a student of government. Not so well known is the fact that he is a Rhodes scholar.

He is seeking no higher job, no judgeship, or other spot for which CAB could be considered but a stepping stone. He likes CAB, has never been happier, and hopes to make a constructive contribution. Much will be heard of him in the future.

As for industry's opinion, one airline official commented after reading a Hector dissent: "He's a refreshing new look on CAB. He thinks."

HECTORISMS

—A Thinking Man's Classic Dissents

"The Civil Aeronautics Board must carefully refrain from substituting its business judgment for the reasonable and experienced judgment of carrier managements."

(Suspended passenger fare increase case, Sept. 25, 1957).

"To my mind there is no better way to encourage a business than the establishment of a good, old-fashioned profit incentive—recognized, clearly defined, and out-in-the-open where it can be effectively supervised and controlled."

(International Air Freight Forwarder Investigation, Nov. 6, 1958).

"Looking to the future, it is clear that the Board will become enmeshed in a hopeless mass of detailed decision-making if it tries to pass in each case on all the details of the proper extent, character, and quality of service to be offered by the local service carriers. General rules must be devised. And in my view, if they are to work properly, they must be based on giving the carrier a real incentive to do a good job.

"I would like to see the Board construct a set of mail rate standards and procedures whereby the detailed decisions as to the kind and amount of service to be offered could in most cases be removed from the area of detailed government regulation and returned to the area of private business decision.

"The cold winds of the competitive market will in the long run be a far better determinate of the proper quality and quantity of service to be offered the public than detailed decisions of a government agency."

(West Coast Airline's Mail Rate Case, January, 1958).

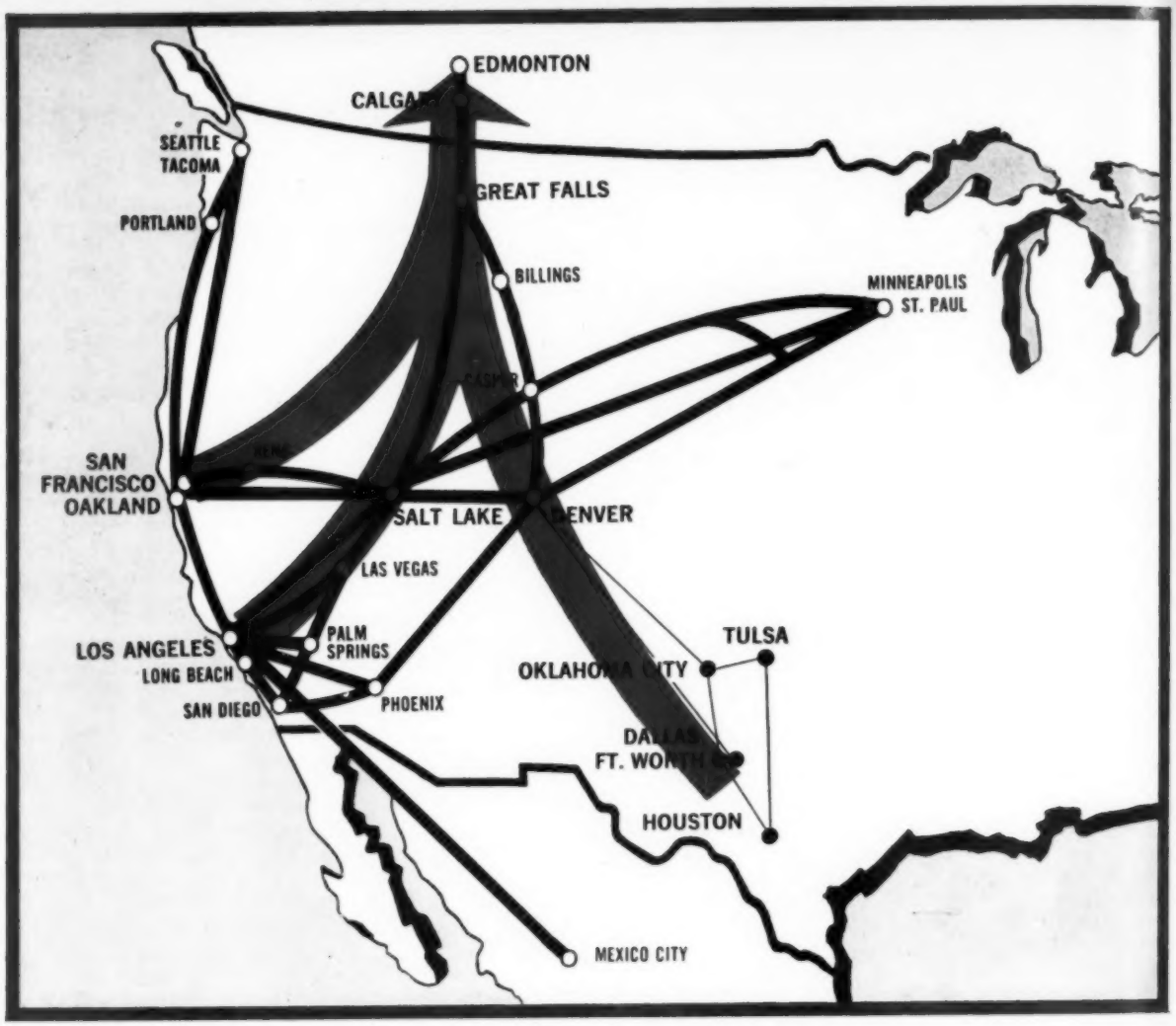
"One of the crucial problems for the airlines in the next decade is to increase traffic substantially and this can probably be accomplished only by lower fares and improved service.

"A majority of the Board, however, apparently frightened that genuine competition might break out . . . voted to disapprove as unreasonable and unlawful the TWA siesta sleeper seat. The majority thus in one stroke denied to the American people the improved services and lower fares on transcontinental flights that real competition had begun to bring to them, and denied to the carriers reasonable freedom to manage their own affairs within the free play of the competitive market."

(TWA Siesta Sleeper Seat Service Case in which Board ordered by 3-2 vote a 20% surcharge, Nov. 20, 1958).

"The carriers are boldly venturing into a new and revolutionary form of public transportation. We should accord proper recognition to the judgment and experience of carrier management during this period of transition to the jets, and give reasonable scope to managerial experimentation in their efforts to determine by experience the proper level of fares. A differential was permitted when the DC-6s were introduced from 1946 to 1948 and I do not see why it should not be permitted now. Certainly this Board would not compel a fare differential without knowing more of the facts about jet operations. By the same token we should not arbitrarily refuse to a carrier reasonable freedom to experiment with jet surcharges."

(Decision turning down jet surcharge request by American Airlines, Jan. 16, 1959).



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WESTERN AIRLINES

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P&W Turbofan Push Is On

By JOSEPH S. MURPHY

THE BIG PUSH is on for turbofans and the newest member of this clan of jet engine derivatives, Pratt & Whitney's JTF10, could well become the biggest breadwinner of them all.

If it doesn't, it won't be because P&W's sales efforts were found wanting. Within but a few weeks of the selection of this scaled-down version of the JT3 fan for the Douglas DC-9, top P&W sales officials headed by sales manager C. T. McKinnie were on hand at the Paris Air Show with a brochure for key airline prospects confirming early specifications on the engine. The stated schedule: production engines in July 1962.

The vital statistics: the JTF10 will be rated at 8,250 lbs. thrust and will have a cruise specific fuel consumption of 0.87 lbs. per pound of thrust per hour at its maximum continuous cruise thrust of 2,500 lbs. (See charts.) It will weigh 2,110 lbs. including exhaust duct for a specific weight of 0.256 lbs. compared to 0.253 for the JT3D.

But overshadowing the significance of these early details is the sales potential of the engine and the breed of small jet transports it is designed to power—the Douglas DC-9 and Boeing 727. Forecasts range anywhere from 800 to 1,200 aircraft, or 3,200 to 4,800 engines, not counting spares. Compared to the 686 JT3s and 1,111 JT4s now on P&W's books or delivered, it represents a big new chunk of business.

And although Pratt & Whitney is in on the ground floor as the "initial or primary" engine on the DC-9, the new small fan is but one of a fistfull of jet programs gaining momentum at East Hartford. S. M. "Stan" Taylor and Hugh Gosselin, respective chiefs of commercial and military sales, are virtually bulging at the briefcases with new projects, new engines, sometimes a mixture of both.

Later this month, the first TF33, military version of the JT3D, will "fly" in the bomb bay of a testbed B-45. It is slated for the B-52, but could be adapted to a variety of other models, the VC-137, KC-135, etc. Its "ready" date for production models . . . June 1960. The commercial counterpart, JT3D, being offered simultaneously, is a "natural" for conversion by airlines from present JT3C6s using water injection.

The JT3C7, a 750-lb.-lighter engine for the Boeing 720 has received FAA certification. Deliveries begin in September. Its rating: 12,000 lbs. dry, but an increase to 13,000 will be available in 1962.

Here's how other P&W programs stand:

JT4A3 (J75)—Rated at 15,800 dry and a 205-lb.-lighter JT4A5 using titanium are being delivered for DC-8s and 707s. The A5 is priced $15,000 higher than the basic JT4.

JT4A11 and A12—Both are rated at 17,500 dry, will be available in July 1960. The A12 saves 205 lbs. by use of titanium.

JT4D3—In the fan versions of the commercial J75, P&W has two approaches. The JT4D3 will use the same front fan as the JT3D, will be rated at 22,500 lbs. Then, as an alternative, by developing a front fan specifically for the JT4, the thrust can be hiked to 25,000 lbs.

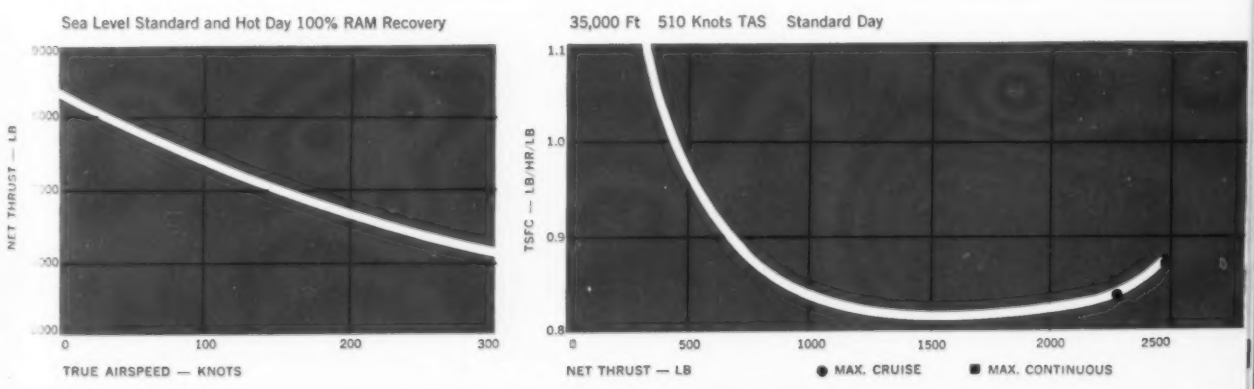
JT12—At the other extreme, this small jet is rated at 3,000 lbs. It is slated for both the Lockheed JetStar and McDonnell 119 utility jets, either or both of which could reach large-scale production. Delivery: October 1960.

Meanwhile, P&W is "in business" with jets. In the first six months of 707 operation, the JT3 is revolutionizing airline thinking on engine maintenance. In 50,000 hours plus of engine flying, 25 JT3s sailed through to their 800 hr. overhaul. Twelve were removed prematurely, but nine were reinstalled as flyovers. Only three needed overhaul.

Compare this record with the R2800 first introduced on the DC-6. In the same amount of flying, the R2800 operated an average 7,143 hrs. between failures, the JT3 16,667.

P&W completed its 35th JT3C overhaul last month and is now in the process of preparing a complete parts consumption list to guide customers. P&W officials report overhaul costs running well below the $20 per flight hour guaranteed for the engine. They see no reason now why the JT3 won't move up the line to a 2,000 hr. period, once improvements are incorporated in certain hot section parts and a mid-period replacement of hot parts is set up.

Performance Curves on P&W JTF10 Turbofan.



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Labor Speaks

By CLARENCE N. SAYEN
President, Air Line Pilots Assn.

Leadership Will Overcome Growth Problems

AIR TRANSPORTATION HAS A FUTURE of growth and an opportunity to make valuable new services and opportunities available to people, if we can solve some of the problems handicapping its growth. The problems handicapping this growth cannot be solved by ignoring them, however.

A fine series of new aircraft with great technical and economic possibilities is being introduced into service. At the same time, the planning and provision by the industry and federal and local government for the air and ground facilities and procedures with which to operate such aircraft have lagged so badly that they are being introduced under substantial safety or economic compromises. Traffic separation problems, inadequate terminal area facilities including approach and landing aids, short runways with unsatisfactory surfaces, inadequate fire fighting and rescue equipment, and other problem areas, will mean either drastic economic or safety compromises in the operation of these aircraft for many years to come.

These problems will become more serious as additional aircraft are introduced into service and service is extended to new areas. True, the government is now attempting a crash program to remedy some of the most serious deficiencies by now initiating programs which the pilots and others urged many years ago. In the meantime, operations must be conducted with facilities and under regulations designed for aircraft of 10 and 20 years ago.

The impetus to solve many of these problems has had to come from the pilots, some management people, and leaders in Congress. The managements of many carriers have, I believe mistakenly, failed or refused to provide leadership in many of these areas. So has government. Some of the failure can be attributed to a failure at the decision-making level to keep currently informed in technical requirements; some of it to a fear of the constant threat of the federal and municipal governments to increase user charges. In government, lack of leadership has resulted from a lack of technical knowledge in positions of decision-making authority, as well as a governmental structure condemned by the pilots as unworkable as early as 1940.

One of the pressing problems of the industry for the next few years promises to be an excess capacity of seats. The industry faces a real challenge in finding new methods of marketing its excess capacity. **It therefore seems to me that management and the members of the Civil Aeronautics Board should, as their primary area of concentration in the present fare investigation, determine areas of business promotion and a fare structure that will bring the advantages of air transportation to a greater percentage of our population.** To do otherwise is unfair to the public who continue to provide the funds to support this industry and its aviation facilities.

For the long-run solution of present economic and equipment problems, this area offers more potential than simply raising fares in the face of an excess of seats and selling at depressed prices depreciated aircraft for which parts have been stocked, personnel trained, and which can provide safe and reliable transportation with present facilities.

Despite the preoccupation of the press with aviation labor during the past year, I do not consider this as one of the industry's major problem areas. On the whole labor relations in the aviation industry are good. Aviation problems tend to get more publicity than those in other industries, but an objective analysis of the labor history of this industry will indicate that interruptions of service from industrial problems have been only minor.

This is not meant to indicate that there have not been difficult labor problems to solve. After all, this is: (1) a young industry; (2) a rapidly growing industry; (3) an industry characterized by a constant state of technological change, with resultant necessary adjustments for employes and management; (4) an industry dominated by strong and dominating personalities, many of whom have been with the industry from its beginning and have many historic prejudices and are personalities who, though they may or may not have an aptitude for industrial relations, dominate managements' policies; (5) an industry in the habit of being regulated by government and in which overlapping government authorities sometimes confuse problems.

The labor record is good

Despite all of the foregoing, the record is good and the "bad relations" and interruptions of service have been chronic on only a few carriers and are not the character of the industry. The rash of strikes in 1958 startled some people who jumped to the conclusion that something was wrong with our bargaining processes. Analysis will show that each strike was preceded by about an 18-month period of unproductive effort within the processes of the Railway Labor Act and a breakdown between the disputants.

This in itself should teach us something: If all parties will learn to use the Railway Labor Act as a means to find proper solutions to their problems, rather than as a means to avoid solving them, our record will be even better. The solution, however, lies in a change in the character of the few people who experience chronic difficulty with their labor relations, not in an overall change in a practical and flexible law that has worked in 99 out of 100 cases.

This is an industry with a great future for public service. As a private enterprise, yet one strongly regulated by government, many people bear a responsibility for its welfare. These people must look constantly far into the future, plan wisely, and have the courage to exert leadership in the solution of its problems. On occasion, however, we have drifted. We cannot afford to do so if we are to realize our potential in the over-all public interest.

EXCLUSIVE

First jet costs, operating statistics

DURING THE FIRST three months of 1959, six U.S. airlines put together their first one-half billion available seat miles with U.S.-built jets and turboprops and recorded better than a 75% load factor.

At the same time, they wrote into the record the first operating costs for three of the big five U.S. turbine entries, the Boeing 707, Lockheed Electra and Fairchild F-27. Here *AIRLIFT* presents the complete tabulation of these costs as reported to the Civil Aeronautics Board, highlighting these areas of performance:

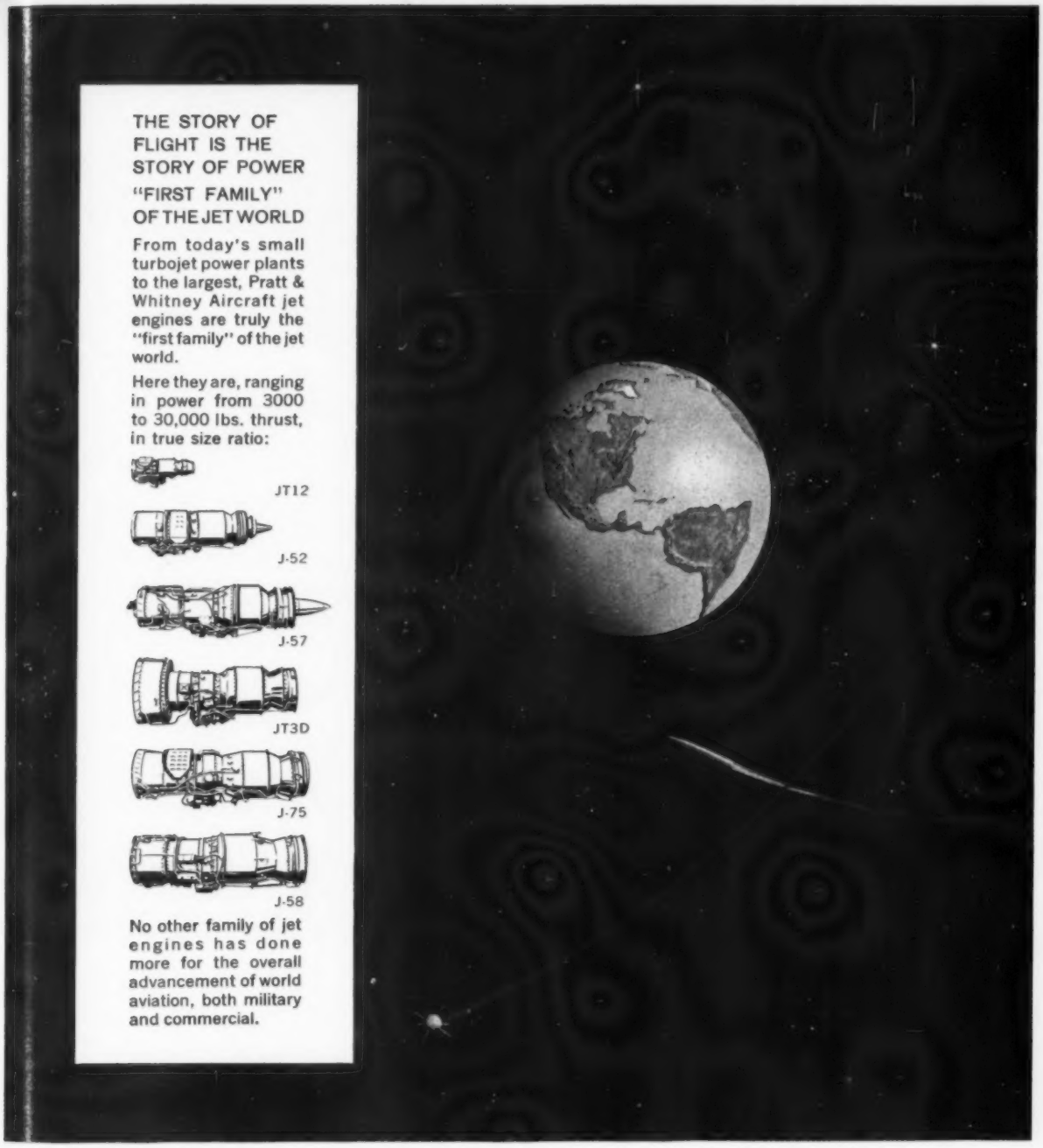
Seat Mile Costs: On the Boeing 707 range from 2.35¢ for Pan American to 2.74¢ for American. American's Electra operations average 3.43¢ and Eastern's 2.20¢. In local operations, the F-27 averaged 3.55¢ for Piedmont and 3.91¢ for West Coast. **Total Direct Operating Costs:** On the 707, PAA was low with 258.16¢ per plane mile compared to 293.66¢ for AA. Eastern registered Electra costs of 152.55¢ per plane-mile, AA 233.34¢ principally due to allocations for engine rental and large "reserves" for maintenance. On the F-27, Piedmont showed direct costs of 113.40¢ per plane-mile and West Coast 133.37¢. **Utilization:** A wide variation here reflects the transition period in which heavy training operations influence the operating statistics. Pan American logged an average 6.5 hrs. on its 707s and AA only 4 hrs. 9 min. On the Electra, Eastern showed a strong 8 hrs. 5 min. and American only 3 hrs. 51 min. In F-27 operations, Piedmont and West Coast ran 5 hrs. and 4 hrs. 55 min. respectively.

Turbine Aircraft Operating Costs and Operating Statistics

First Quarter 1959

(Costs in cents per revenue mile)

	Boeing 707			Lockheed Electra		Fairchild F-27	
	PAA	NAL	AAL	AAL	EAL	Piedmont	WCA
Crew Salaries, Expenses	35.50	20.02	20.25	23.38	34.08	20.90	24.70
Fuel, Oil & Taxes	62.30	58.70	55.20	28.20	26.72	17.50	24.60
Insurance	19.37	....	24.00	8.52	3.35	7.46	8.65
Other	.67	....	....	Eng. rental 44.50	.84	.68	....
Total Flying Operations	117.84	78.72	99.45	104.60	64.97	46.56	57.95
Labor	13.48	....	13.40	10.54	11.47	10.74	12.78
Materials	9.68	....	19.65	12.72	11.10	5.26	9.56
Reserves	25.05	....	35.30	31.95	2.59	16.35	21.38
Total Direct Maintenance	48.21	....	68.35	55.21	25.16	32.35	43.72
Maintenance Indirect	33.70	....	29.65	23.30	12.75	13.70	9.53
Total Maintenance	81.91	....	98.00	78.51	37.91	46.05	53.25
Depreciation—Aircraft	33.22	....	50.90	43.90	28.30	13.70	13.62
—Engines	12.13	....	31.62	....	8.10	3.23	4.98
—Parts & Other	14.06	196.17 (rentals)	13.69	6.33	13.37	3.86	3.57
Total Depreciation	58.41		96.21	50.23	49.77	20.79	22.17
TOTAL AIRCRAFT OPERATING EXPENSES	258.16	274.89	293.66	233.34	152.55	113.40	133.37
Hours Flown—Revenue	2,582	964	1,164	1,808	7,992	3,746	2,653
—Training	56	....	614	431	900	....	58
—Other	46	....	51	52	323	126	51
Total Hours	2,684	964	1,829	2,291	9,215	3,872	2,762
Revenue Utilization	6:30	6:39	4:09	3:51	8:05	5:00	4:55
Total Miles (Rev. & Nonrev.)	1,363,853	430,327	801,807	742,465	3,095,695	844,356	504,454
Revenue Miles Sched. Services	1,229,933	430,327	555,842	601,241	2,655,768	743,328	484,524
Available Seat Miles (000)	135,632	48,008	59,078	40,920	184,334	23,538	16,497
Revenue Passenger Miles (000)	122,940	42,718	55,695	32,918	113,905	11,848	8,249
Passenger Load Factor	90.8%	89.0%	94.2%	80.4%	61.8%	50.3%	50.0%
Fuel Consumed-Gals/Hr	2,162	2,490	2,330	796	729	294	271
Average Speed-Airborne	477	447	477	332	333	200	183
—Block to Block	454	408	448	297	299	163	149
Cost per avail seat-mile (less nonrev flying)	2.35¢	2.47¢	2.74¢	3.43¢	2.20¢	3.55¢	3.91¢
Average Seats Per Mile	110.2	111.5	107.2	68.1	69.4	32.0	34.1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U.S. Airline Revenues and Expenses

1st Quarter 1959 vs. 1958

This complete summary compiled by AIRLIFT magazine from Official CAB Records

	Total Operating Revenues			Passenger Revenues			Total Operating Expenses			Net Operating Income		
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change
DOMESTIC												
American	$ 67,638,643	$ 69,205,865	— 2.3	$ 59,889,663	$ 61,269,650	— 2.3	$ 71,451,163	$ 67,441,696	5.9	—$3,812,520	$ 1,764,169	...
Braniff	16,556,644	14,198,552	16.6	15,049,989	13,019,669	15.5	14,442,728	13,521,890	6.8	2,113,916	676,662	212.4
Capital	26,595,560	23,444,104	13.4	25,188,215	22,012,169	14.4	26,873,262	24,114,509	11.4	—277,702	—670,405	...
Continental	7,835,985	5,688,367	37.8	7,138,056	5,257,981	35.8	7,669,673	5,934,268	29.2	166,312	—245,901	...
Delta	25,743,783	21,505,441	19.7	23,592,059	19,690,633	19.8	23,917,176	21,346,986	12.0	1,826,607	158,455	1052.7
Eastern	64,286,534	65,326,305	— 1.6	60,130,394	61,423,842	— 2.1	58,313,902	60,735,668	— 4.0	5,972,632	4,590,637	30.1
National	21,828,652	17,028,826	28.1	20,152,236	15,597,473	29.2	18,503,398	15,823,747	16.9	3,325,254	1,205,079	175.9
Northeast	8,329,862	5,719,913	45.6	7,862,611	5,329,936	47.5	8,645,394	7,071,000	22.3	—315,532	—1,351,087	...
Northwest	19,111,369	12,340,485	54.9	17,053,264	10,760,727	58.5	19,959,744	14,449,598	38.1	—848,375	—2,109,113	...
Trans World	57,385,789	47,034,799	22.0	52,490,261	42,317,937	24.0	55,553,912	52,624,275	5.6	1,831,877	—5,589,476	...
United	74,590,333	63,350,245	17.7	64,702,959	55,123,909	17.4	70,566,762	63,998,093	10.3	4,023,571	—647,848	...
Western	12,546,394	6,216,339	101.8	11,649,945	5,757,936	102.3	10,289,469	6,945,661	48.1	2,256,925	—729,322	...
TOTALS	$402,449,548	$351,059,241	14.6	$364,899,652	$317,561,862	14.9	$386,186,583	$354,007,391	9.1	$ 16,262,965	—$2,948,150	...
INTERNATIONAL												
American	$ 1,836,061	$ 1,851,538	— 0.8	$ 1,583,848	$ 1,571,159	0.8	$ 1,689,099	$ 1,664,625	1.5	$ 146,962	$ 186,913	—21.4
Braniff	1,848,072	2,024,023	— 8.7	1,569,187	1,749,400	—10.3	1,879,436	2,033,081	7.6	— 31,364	— 9,058	...
Delta	1,248,357	1,607,958	—22.4	1,144,218	1,487,883	—23.1	1,311,714	1,389,985	— 5.6	— 63,357	217,973	...
Eastern, Overseas	6,174,895	5,454,180	13.2	5,855,020	5,168,192	13.3	5,058,227	4,518,705	11.9	1,116,668	935,475	19.4
San Juan	4,405,624	3,930,944	12.1	4,170,963	3,719,800	12.1	3,658,348	3,113,065	17.5	747,276	817,879	— 8.6
Bermuda	314,722	364,962	—13.8	284,095	343,797	—17.4	306,880	377,055	—18.6	7,842	— 12,093	...
Mexico	1,454,549	1,158,274	25.6	1,399,962	1,104,595	26.7	1,092,999	1,028,585	6.3	361,550	129,689	178.8
National	1,055,453	1,314,728	—19.7	974,227	1,205,410	—19.2	1,057,225	1,186,931	—10.9	— 1,772	127,797	...
Northwest	8,131,950	6,439,141	26.3	4,821,647	3,992,780	20.8	7,033,785	6,261,642	12.3	1,098,165	177,499	518.7
Panagra	4,524,112	5,039,270	—10.2	3,500,397	3,683,317	— 5.0	4,626,157	4,774,823	— 3.1	—102,045	264,447	...
Pan American, System	71,758,202	64,307,514	11.6	53,122,829	47,787,412	11.2	76,826,782	71,714,992	7.1	—5,068,580	—7,407,478	...
Non-Divisional	.....	.....	...	.....	.....	...	1,411	27,585	—94.9	— 1,411	— 27,585	...
Latin American	23,756,036	22,448,983	5.8	18,698,907	17,480,747	7.0	24,503,939	23,745,813	3.2	—747,903	—1,296,830	...
Atlantic	28,039,657	24,619,121	13.9	21,330,029	18,111,809	17.8	31,145,872	29,531,599	5.5	—3,106,215	—4,912,478	...
Pacific	19,317,776	16,612,994	16.3	12,605,632	11,708,276	7.7	19,964,077	17,237,780	15.8	—646,301	—624,786	...
Alaska	644,733	626,416	2.9	488,261	486,580	0.3	1,211,483	1,172,215	3.3	—566,750	—545,799	...
Trans Caribbean	1,116,055	172,840	545.7	976,530	123,023	693.8	1,164,318	196,736	491.8	—48,263	—23,896	...
Trans World	13,252,198	12,509,255	5.9	6,883,058	8,828,114	— 2.2	18,463,024	17,087,044	8.0	—5,210,826	—4,577,789	...
United	3,228,054	2,793,667	15.5	2,972,257	2,522,461	11.8	2,912,654	2,724,283	6.9	315,400	69,384	354.6
Western	1,108,735	290,502	281.7	1,063,621	283,295	275.4	1,029,732	352,766	191.9	79,003	—62,264	...
TOTALS	$115,282,144	$103,804,616	11.1	$ 84,466,839	$ 78,402,446	7.7	$123,052,153	$113,905,613	8.0	—$7,770,009	—$10,100,997	...
LOCAL SERVICE												
Allegheny	$ 2,321,716	$ 1,733,160	34.0	$ 1,238,201	$ 1,048,908	18.0	$ 2,483,001	$ 2,188,032	13.5	$—161,285	$—454,872	...
Bonanza	1,295,955	1,130,215	14.7	817,550	685,114	19.3	1,220,487	1,101,170	10.8	75,468	29,045	159.8
Central	1,265,106	1,116,505	13.3	523,707	369,829	41.6	1,300,358	1,088,677	19.4	—35,252	27,828	26.7
Frontier	2,088,591	1,678,872	24.4	983,388	948,862	3.6	2,202,609	1,736,154	26.9	—114,018	— 57,282	...
Lake Central	1,019,934	907,286	12.4	540,526	432,589	24.9	1,014,809	956,990	6.0	5,125	— 49,704	...
Mohawk	2,370,726	1,858,874	27.5	1,768,527	1,232,844	43.5	2,428,383	2,145,862	13.2	— 57,657	—286,988	...
North Central	3,619,024	2,609,630	38.7	2,054,288	1,836,925	11.8	3,661,927	2,999,571	22.1	— 42,903	—389,941	...
Ozark	2,103,324	1,824,173	15.3	1,306,744	1,071,225	22.0	2,299,455	1,887,596	21.8	—196,131	— 63,423	...
Pacific	1,763,875	1,514,055	16.5	1,131,133	1,002,287	12.9	1,920,130	1,660,393	15.6	—156,255	—146,338	...
Piedmont	2,354,548	1,920,605	22.6	1,577,904	1,184,915	33.2	2,755,194	2,086,750	32.0	—400,646	—166,145	...
Southern	1,391,651	1,121,777	24.1	736,609	585,537	25.8	1,424,563	1,235,185	15.3	— 32,912	—113,408	...
Trans-Texas	1,811,428	1,609,729	12.5	974,845	779,822	25.0	1,727,869	1,626,793	6.2	83,559	— 17,064	...
West Coast	1,329,835	1,100,857	20.8	865,662	624,117	38.7	1,918,700	1,206,381	59.0	—588,865	—105,524	...
TOTALS	$ 24,735,713	$ 20,125,738	22.9	$ 14,519,084	$ 11,802,974	23.0	$ 26,335,485	$ 21,919,554	20.1	—$1,621,772	—$1,793,816	...
HELICOPTER												
Chicago	$ 602,344	$ 408,360	47.5	$ 160,591	$ 102,436	56.8	$ 537,974	$ 444,731	21.0	$ 64,370	$ — 36,371	...
Los Angeles	327,884	315,915	3.8	42,298	37,322	13.3	299,749	295,800	1.3	28,135	20,115	39.9
New York	762,333	548,191	39.1	153,082	113,817	34.5	747,987	596,710	25.4	14,346	—48,519	...
TOTALS	$ 1,692,561	$ 1,272,466	33.0	$ 355,971	$ 253,575	40.4	$ 1,585,710	$ 1,337,241	18.6	$ 106,851	$ — 64,775	...
TERRITORIAL												
Cardair	$ 800,091	$ 627,138	27.6	$ 733,467	$ 582,808	25.8	$ 552,602	$ 507,418	8.9	$ 247,489	$ 119,720	106.7
Hawaiian	1,557,308	1,113,016	39.9	1,257,689	927,902	35.5	1,587,529	1,336,294	18.8	—30,221	—223,278	...
Trans Pacific	539,550	451,108	19.6	508,662	379,179	34.1	625,556	546,007	14.6	—86,006	—94,899	...
TOTALS	$ 2,896,949	$ 2,191,626	32.2	$ 2,499,818	$ 1,889,889	32.3	$ 2,765,687	$ 2,389,719	15.7	$ 131,262	$ —198,457	...
ALASKAN												
Alaska	$ 1,524,062	$ 1,318,088	15.6	$ 510,047	$ 327,926	55.2	$ 1,624,445	$ 1,309,008	24.1	$ —100,383	$ 9,080	...
Alaska Coastal	366,452	264,090	38.8	128,738	122,902	4.7	410,943	336,001	22.3	—44,491	— 71,911	...
Cordova	288,037	225,162	27.9	24,059	17,913	34.3	256,754	219,135	17.2	31,283	6,027	419.0
Ellis	261,762	177,996	47.1	97,098	79,380	21.6	240,128	255,043	6.7	21,634	— 77,047	...
Nor. Consolidated	533,245	508,407	4.9	127,874	127,430	0.3	647,644	535,985	20.8	—114,399	— 27,578	...
Pacific Northern	2,234,207	1,964,449	13.7	1,160,592	898,222	29.2	2,376,442	2,105,107	12.9	—142,235	—140,658	...
Reeve	NA	.....	NA	NA	.....	NA	NA	.....	...	NA	.....	...
Wien	1,091,430	736,728	48.2	130,727	113,198	15.5	1,148,040	833,757	37.7	—56,610	—97,029	...
TOTALS	$ 6,299,195	$ 5,194,920	21.3	$ 2,179,135	$ 1,687,471	29.1	$ 6,704,396	$ 5,594,036	19.8	$ —405,201	$ —399,116	...

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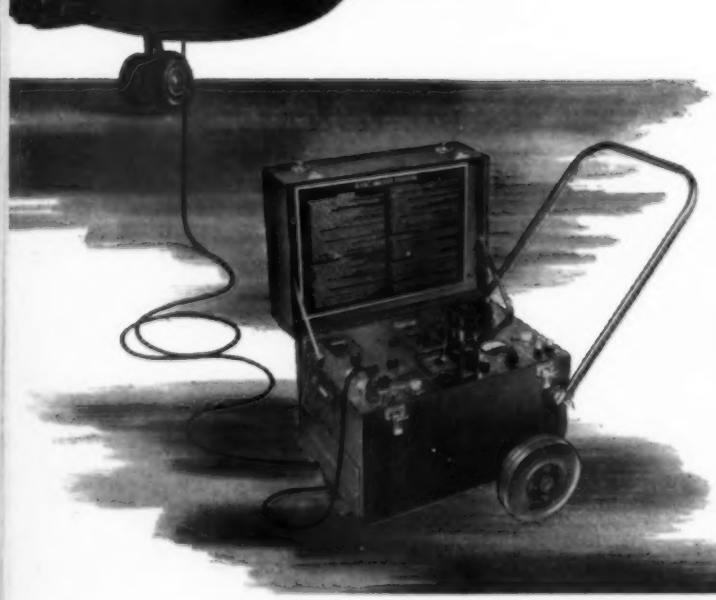

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Business Planes Spell Tasty Profits

Although Cessna, Beech and Piper account for 88% of today's business, nine firms now eye this lucrative market

By SELIG ALTSCHUL
Contributing Editor

The lightplane builders are finding the commercial vineyards tasty and profitable. This is unlike the experience of their big brothers, the manufacturers of the new family of jet transports, who have found their commercial excursion very costly, thus far (*AIRLIFT*, June 1959).

Lightplanes, which include an increasing number of business or executive aircraft, were delivered in increasing dollar volume and units during 1958. The upward trend continues with new peaks in sales being shown for the first four months of 1959.

The record year was 1956, when 6,738 units with a manufacturers' billing value of $103.8 million were delivered. This record will most likely be broken during 1959.

$44 million in four months

Personal and executive aircraft shipments aggregated 6,416 units with a net billing price of $102 million in 1958. This compared with 6,118 units valued at $99.6 million for 1957. During the first four months of 1959, 2,653 aircraft having an aggregate billing value of $44 million were delivered and compares with 2,315 units and a value of $37.9 million for the same period in 1958.

The strong demand for lightplanes is a manifestation of the growing acceptance by wider segments of business of this type of aircraft as a vital transportation instrument with a dollar and cents economy.

While there are nine builders of personal and executive aircraft (thus far), the bulk of this business is conducted by three companies, Cessna, Beech and Piper. These three builders accounted for 88% of the total dollar value of the industry's commercial deliveries during 1958.

Cessna is the outstanding leader in the field. For the calendar year 1958, it billed a total of $36.9 million in lightplane commercial sales or about 36% of the industry total. The company continues to set the pace into 1959, with total billings in this category of $17.1 million for the first four months and 38.9% of the industry total. This compared with $14.9 million for the same period in 1958.

This accomplishment by Cessna is reflected in the company's financial results in recent years. Sales have been mounting steadily, largely due to the substance of commercial aircraft deliveries. And their relatively better profit margins have been transformed into a healthy earnings trend (see table). It can be seen that in recent years commercial aircraft business has accounted for about half of the company's total sales and sustained one of the best profit margins in the entire aircraft industry.

Success is not without its hazards. This is demonstrated by Cessna's ill-fated venture in the four-engine Model 620. Costs of $2.3 million resulting from the abandonment of this project were charged off in 1958. Were it not for this factor, earnings for that year would have, of course, been higher.

There can be no mistaking, however, the surging uptrend in Cessna's commercial aircraft sales and earnings. For example, for the six months ending March 31, 1959, the company showed total sales of $47.3 million and net earnings of $3.6 million. This compared with sales of $44.3 million and net earnings of $2 million for the like period of a year ago. While the current six months reported includes sales of $2.6 million by Aircraft Radio Corp. (previously acquired by Cessna) the fact remains that commercial aircraft sales were up 17% while military sales were down 21%.

Cessna forecasts $95 million

With Cessna now accounting for half of all units sold by the general aviation industry, the company's forecast of total over-all sales volume of $95 million for the fiscal year to end September 30, 1959 is readily attainable. It is true that Aircraft Radio sales will augment the total but were it not for commercial airplane billings, Cessna would not be on its way in recording an all-time new peak in sales.

Beech is also a major factor in lightplane sales, having billings of $26.7 million in this category or about 26% of the group's total in calendar year 1958. For the first four months of 1959, Beech recorded $10.9 million in commercial aircraft sales as compared to $11.6 million in the same period for 1958.

While lightplane sales bulk importantly in the Beech picture, they are

BEECH AIRCRAFT CORP.
Summary of Sales and Earnings

Fiscal year ended Sept. 30	Total sales	Commercial aircraft sales	% Commercial to total	Net earnings	% Net profit margin
	(Dollar amounts in thousands)				
1954	$78,033	$20,829	26.7	$3,386	4.3
1955	76,966	27,246	35.4	3,587	4.6
1956	74,539	32,092	43.1	3,331	4.5
1957	103,905	35,746	34.4	3,369	3.2
1958	95,890	32,104	33.5	3,324	3.4

CESSNA AIRCRAFT CO.
Summary of Sales and Earnings

Fiscal year ended Sept. 30	Total sales	Commercial aircraft sales	% Commercial to total	Net earnings	% Net profit margin
	(Dollar amounts in thousands)				
1954	$45,114	$12,136	26.9	$2,175	4.8
1955	50,001	21,647	43.3	2,839	5.7
1956	66,267	37,703	56.9	4,206	6.3
1957	70,049	32,628	46.6	3,866	5.5
1958	86,160	38,231	44.4	4,755	5.5

overshadowed by the company's activities in military type production (see table). One consequence is that profit margins are more in line with that experienced for the aircraft industry as a whole.

However, with its commercial sales down somewhat along with a decline in military deliveries, Beech, for the six months ended March 31, 1959, reported over-all sales of $39.6 million and net earnings of $1,568,000 as compared with sales and earnings, respectively, of $49 million and $1,633,000 for the same period in 1958.

Piper is almost exclusively a producer of lightplanes (98% of its total sales in 1958). The company has shown a sharp gain in its volume to challenge Beech in the lightplane sweepstakes for second place in terms of units and dollar volume.

Piper up 250%

Piper increased its sales volume more than 250% from 1954 through 1958 (fiscal) when its sales went from $11.4 million to $27.1 million.

In calendar year 1958, Piper had billings of $26.5 million or about 26% of the group total. For the first four months of this year, Piper increased its sales to $10,992,000, passing Beech in the process. For the same period in 1958, Piper had total lightplane billings of $8,450,000.

This accomplishment is reflected in the current results reported for the six months ended March 31, 1959 when Piper showed sales of $16.4 million and net income of $1,249,000 as compared with sales and net earnings, respectively, of $12.5 million and $975,000.

Profit margins have been high on Piper's business, averaging better than 10%, after taxes for fiscal 1956 and 1957 with slightly better than 8% for fiscal 1958 and during the first half of its 1959 fiscal year.

It is this attraction of better profit margins plus the desire to seek protection against the vicissitudes of military procurement that has brought other aircraft builders well along into the executive or business transport market. However, this new group of entries is in a price range well beyond the prevailing scale of lightplanes being flown.

Grumman is now producing its Gulfstream, a propjet with a price tag of around $1 million. Development of this aircraft has been a drain on Grumman earnings in recent years. About $3.5 million in 1957 and $9.5 million in 1958 were expended on this airplane. (Net earnings, after taxes, were $5.2 million in 1957 and $2.5 million in 1958.) Total write-offs on the Gulfstream for 1959 are expected to take another $4.5 million.

Grumman believes it can break even on the Gulfstream when it sells between 125 and 150 units.

Orders for a total of 40 of this craft have been reported by the company with the expectation that 27 are to be delivered this year. The Gulfstream will unquestionably be a major element in influencing the course of Grumman's earnings in the immediate period ahead.

Keyed to the expectation of obtaining military orders, both McDonnell and Lockheed are entering the commercial market with a four-engine utility jet. McDonnell is known to have spent $12 million of its own money in this development and is awaiting a military go-ahead for its Model 119. So is Lockheed in hotly contesting for an Air Force award for this type plane with its own JetStar. In any event, Lockheed has announced that it is starting production on the JetStar for commercial deliveries in late 1960.

North American Aviation, despite its major concentration in missiles and the key aircraft programs of the B-70 and F-108, is not too preoccupied to ignore the lightplane field. Its twin-jet Sabreliner may yet see flight as a commercial lightplane. The Air Force has awarded the company an order for a number of these aircraft as a utility trainer. The extent of the military program for the Sabreliner will most likely influence its fate into the commercial lists.

While the profit potentialities are enticing in the lightplane field, the hazards are great as well. North American remembers only too well its experience with its commercial Navion. Republic had an unhappy experience with its Seabee following World War II. Evolution changes market conditions and demand. The lightplane, despite its transition to business aircraft, while holding forth the luster of profit also has some built-in risks.

AIR EXPRESS

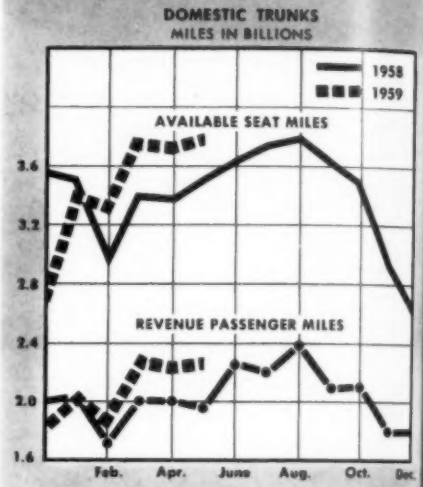
Shipments, Revenues Up, Promise Banner Year in '59

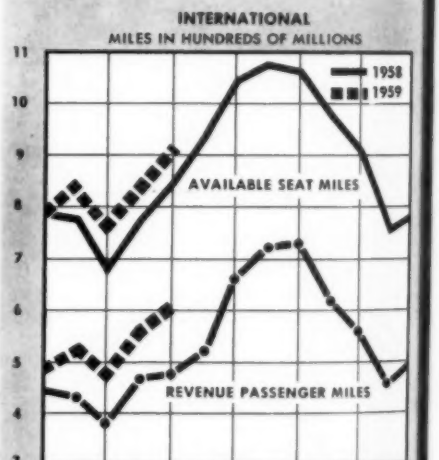
Air Express may mark up its banner year in 1959. Emil Seerup, general manager of the Air Express division, Railway Express Agency, reports shipments currently are running approximately 17% higher than last year, revenues 20% higher. The record to beat for a new all-time high is 53,398,535 ton-miles accomplished in 1956. Ton-miles for the first four months of 1959 as compared to the same months in 1958 are as follows:

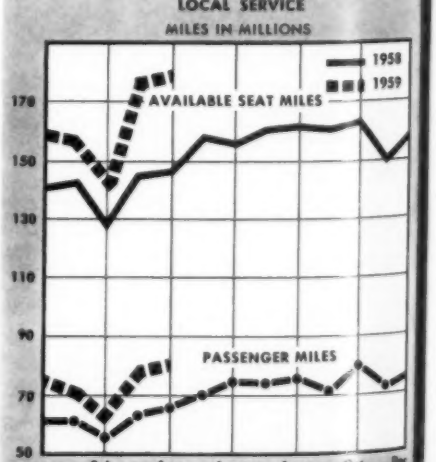
	1958	1959
January	3,833,000	4,492,000
February	3,259,000	3,900,000
March	3,600,000	4,495,000
April	3,621,000	4,489,000

HOW'S TRAFFIC

Among U.S. Airlines







U.S. Airline Traffic for April 1959 vs. April 1958

This complete summary compiled by AIRLIFT magazine from Official CAB Records

	Revenue Passengers (000)			Revenue Passenger Miles (000)			Total Ton-Miles Rev. Traffic			% Available Ton-Miles Used	
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958
DOMESTIC											
American	646	607	6.4	445,974	393,554	13.3	53,443,349	47,035,207	13.6	60.1	54.4
Braniff	175	175	.....	75,224	74,932	0.4	8,355,415	8,112,502	3.0	48.9	47.3
Capital	337	331	1.8	143,850	128,310	12.1	14,945,589	13,384,395	11.7	53.1	46.0
Continental	77	64	20.3	36,994	28,617	29.3	3,852,353	3,043,045	26.6	45.3	43.1
Delta	260	230	13.0	132,910	119,676	11.1	14,635,766	13,138,547	11.4	53.0	51.7
Eastern	708	683	3.7	394,161	399,677	— 1.4	40,793,195	41,040,142	— 0.6	42.7	51.0
National	168	146	9.6	103,535	101,661	1.8	11,018,099	10,740,938	2.6	45.1	48.1
Northeast	100	75	33.3	46,366	38,640	20.0	4,672,904	3,945,648	18.4	40.6	42.0
Northwest	142	115	23.5	105,801	75,850	39.5	12,245,938	8,772,060	39.6	45.4	46.7
Trans World	405	375	8.0	332,953	292,592	13.8	36,259,799	31,529,946	15.0	59.7	55.3
United	561	547	2.6	379,362	380,497	0.3	46,437,120	44,587,080	4.1	56.8	56.5
Western	119	1	+	60,801	420	+	6,490,382	39,868	+	49.6	58.9
TOTALS	**3,690**	**3,349**	**10.2**	**2,257,931**	**2,034,426**	**11.0**	**253,149,909**	**225,369,378**	**12.3**	**52.3**	**52.1**
INTERNATIONAL											
American	9	10	—10.0	9,222	9,209	0.2	1,197,726	1,292,130	— 7.3	56.2	54.5
Braniff	3	3	.....	6,221	6,427	— 3.2	815,155	824,250	— 1.1	44.9	40.1
Delta	4	4	.....	4,623	4,450	3.9	563,535	558,861	0.8	40.7	38.7
Eastern, Overseas	33	30	10.0	46,615	38,928	19.7	5,036,909	4,202,844	19.8	54.3	57.5
San Juan	24	20	20.0	36,665	28,620	28.1	3,944,639	3,082,409	28.0	59.9	64.6
Bermuda	5	7	—28.6	3,952	5,122	—22.8	412,134	531,270	22.4	33.8	48.2
Mexico	4	3	33.3	5,998	5,186	15.7	680,136	589,165	15.4	46.3	41.0
National	7	3	133.3	5,247	1,948	169.4	602,558	241,894	49.1	48.5	23.3
Northwest	12	10	20.0	26,534	23,923	10.9	5,172,825	4,307,023	20.1	65.1	59.6
Hawaiian	2	2	.....	5,749	4,690	22.6	654,795	524,448	24.9	62.1	65.7
Panagra	11	11	.....	14,282	12,448	14.7	2,174,195	1,864,928	16.6	63.1	56.8
Pan American, System	228	197	15.7	334,434	286,142	16.9	46,840,006	39,703,730	18.0	66.0	58.9
Latin America	100	80	25.0	103,207	86,433	19.4	14,838,797	12,850,870	15.5	64.9	59.6
Atlantic	100	92	8.7	127,242	113,516	12.1	17,482,312	15,139,558	15.5	63.6	52.9
Pacific	26	22	18.2	101,318	82,978	22.1	14,068,885	11,153,045	26.1	71.5	68.7
PDX/SEA-HON.	2	1	100.0	4,777	3,607	32.4	531,704	406,388	30.8	54.6	54.3
Alaska	2	3	—33.3	2,667	3,215	—17.0	450,012	560,257	—18.9	47.7	53.5
Trans Caribbean	6	4	.....	9,100	6,805	....	880,622	576,424	....	77.1	78.8
Trans World	28	24	16.7	89,262	61,749	44.6	11,977,281	8,047,560	48.8	73.8	51.6
United	8	7	14.3	19,904	16,474	20.8	2,270,868	1,876,322	21.0	62.8	55.4
Western*	30	.....	.....	5,203	.....	....	5,223,328	.....	....	58.4	....
TOTALS	**379**	**303**	**25.1**	**570,647**	**468,503**	**21.8**	**82,755,008**	**63,495,966**	**30.3**	**64.6**	**61.4**
LOCAL SERVICE											
Allegheny	42	38	10.5	7,326	6,580	11.3	758,334	669,056	13.3	44.0	45.5
Bonanza	19	17	11.8	4,841	3,834	26.3	479,895	381,562	25.8	57.6	47.5
Central	14	11	27.3	2,678	2,048	30.8	277,604	209,324	32.6	32.0	30.6
Frontier	23	19	21.1	5,800	5,886	— 1.5	650,351	643,334	1.1	45.7	61.1
Lake Central	19	14	35.7	2,974	2,262	31.5	304,297	232,213	31.0	47.0	37.4
Mohawk	46	38	21.1	8,875	7,073	25.5	884,911	708,537	24.9	56.6	51.8
North Central	71	58	22.4	12,041	9,570	25.8	1,226,584	969,293	26.5	46.4	46.1
Ozark	48	34	41.2	8,227	5,579	47.5	844,897	569,488	48.4	45.1	45.0
Pacific	35	31	12.9	7,903	6,829	15.7	780,282	673,781	15.8	51.2	50.3
Piedmont	41	33	24.2	8,317	6,676	24.6	840,667	672,675	25.0	47.4	49.9
Southern	22	18	22.2	3,919	3,202	22.4	409,926	328,134	24.9	39.9	37.3
Trans-Texas	21	19	10.5	4,961	4,158	19.3	531,220	444,604	19.5	41.6	36.7
West Coast	26	20	30.0	5,074	3,602	40.9	501,606	357,303	40.4	46.5	43.4
TOTALS	**427**	**350**	**22.0**	**82,936**	**67,299**	**23.2**	**8,490,494**	**6,859,304**	**23.8**	**46.7**	**45.8**
HELICOPTER											
Chicago	13	8	62.5	245	151	62.3	24,598	16,315	50.8	37.5	33.0
Los Angeles	4	3	33.3	117	96	21.9	18,398	15,691	17.3	61.8	58.2
New York	9	6	50.0	165	119	38.7	19,622	14,382	36.4	46.4	43.3
TOTALS	**26**	**17**	**52.9**	**527**	**366**	**44.0**	**62,618**	**46,388**	**35.0**	**45.5**	**42.3**
TERRITORIAL											
Caribair	29	23	26.1	2,026	1,637	23.8	221,183	177,007	25.0	69.4	69.4
Hawaiian	35	33	6.1	5,162	4,808	7.4	532,803	521,989	2.1	60.3	58.6
Trans Pacific	17	17	.....	2,318	2,239	3.5	193,214	187,757	2.9	54.2	58.9
TOTALS	**81**	**73**	**11.0**	**9,506**	**8,684**	**9.5**	**947,200**	**886,753**	**6.8**	**60.8**	**59.9**
ALASKAN											
Alaska	9	5	80.0	8,091	2,199	267.9	1,020,003	462,983	120.3	51.4	38.7
Alaska Coastal	4	4	.....	409	357	14.6	49,125	44,678	9.8	60.4	67.7
Cordova	1	1	.....	178	121	47.1	81,184	23,782	241.4	47.9	43.7
Ellis	4	4	.....	275	204	34.8	32,058	25,614	25.2	68.5	70.7
Nor. Consolidated	2	1	100.0	518	466	11.2	149,264	128,670	16.0	56.2	56.0
Pacific Northern	9	7	28.6	7,797	6,504	19.9	1,197,279	1,001,373	19.6	59.1	47.5
Reeve	1	1	.....	698	685	1.9	252,664	206,081	22.6	56.2	50.0
Wien	3	2	50.0	733	839	—12.6	376,367	269,729	39.5	57.6	61.1
TOTALS	**33**	**25**	**32.0**	**18,699**	**11,375**	**64.4**	**3,157,944**	**2,162,910**	**46.0**	**55.7**	**47.6**

*No operations in 1958 due to strike.

NEWEST MEMBER IN A FAMILY OF GREATS

The Canadair-Convair '540', by the application of turbine power, becomes the ultimate development of the widely used and approved Convair 240-340-440 series. The '540' is now on order and in full scale production.

6 MAJOR REASONS

why the '540' is the new challenger on short-to-medium routes!

1 DEFINITELY LOWER OPERATING COSTS

The standard 48-seat Canadair-Convair '540' offers **a direct operating cost of 1.4¢ per seat mile which comes down to 1.1¢ in the 58-seat configuration.** Over distances as short as 80 miles, its economy of operation matches even that of piston-engined aircraft.

2 GROWTH CAPACITY TO MEET GROWING ROUTE DENSITIES

The Canadair-Convair '540' has the built-in capability of growing with the increased traffic densities that are forecast for the years ahead. It can do this because its **seating capacity can be increased by 20%** from 48 to 58 **without weight or operating penalty.** All fuel for terminal-to-terminal operation could still be carried.

3 MATCHED-TO-TASK JET-PROP ENGINES

The Napier 3500 e.h.p. engines that power the Canadair-Convair '540' are **the only jet-props specifically designed for the particularly strenuous up-and-down life of short stage operations.** The sectionalized design of these powerful new engines make them singularly easy to service and maintain.

4 REDUCED EN-ROUTE GROUND TIME LOSSES

The Canadair-Convair '540' **eliminates numerous possible time delays at en-route stops:** passenger handling is expedited . . . time consuming engine warm-ups are unnecessary . . . as many as 6 route stops can be made without refuelling.

5 FASTER FLYING, QUICKER CLIMBING

Today's passengers want to **make time.** The Canadair-Convair '540' is **the fastest aircraft in its class,** flying at speeds up to 340 m.p.h. It's off the ground in a flash and takes only 6.4 minutes to climb to an operating level of 10,000 feet.

6 EXTRA CARGO SPACE FOR EXTRA PROFITS

The Canadair-Convair '540' has 402 cubic feet of easily accessible cargo space: enough for **two tons of additional payload** that can be carried with no operating penalty.

MOST IMPORTANT TO YOU

The '540' is a product of Canadair which, as a member of the General Dynamics family of companies, is associated with the following corporate divisions that constitute this important enterprise and represent it in its many exciting fields of activity: Convair, for the Atlas satellite and missile programme; Electric Boat, for atomic-powered submarines; Stromberg-Carlson, for nuclear instrumentation; General Atomics, for Triga research reactors; Liquid Carbonic, for production of industrial and medical gasses; and Electro-Dynamics, for the production of electro-mechanical control equipment.

Your request for detailed information on the Canadair-Convair 540 will receive our immediate attention: contact the Director of Commercial Sales, P.O. Box 6087, Montreal

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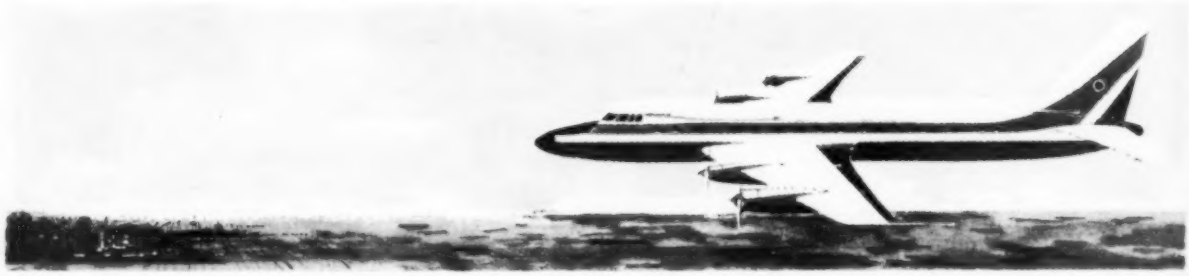

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Engines Testing Out on Convair 880

By FRED HUNTER

In the first 150 hours of flight testing of the Convair 880 jet airliner, not a single inflight squawk was registered against the engines by the pilots—a development causing much rejoicing among Convair sales and engineering executives.

It's no secret that a Convair sales problem on the 880—and its turbofan companion, the 600—has stemmed from the company's selection of a powerplant produced by a manufacturer new to the airline engine market.

In this day and age, jet transport salesmen have come to brace themselves for this question from prospective purchasers: "How can you help us with financing?" Convair salesmen prepare for another: "Now, what about the engine?"

The two Convair 880 test airplanes on the field at San Diego.

Plenty of military background

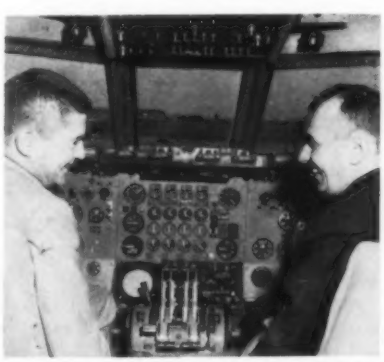
General Electric, whose CJ805-3 engine supplies the power for the Convair 880, has a long background of eminently successful military jet experience. Its I-40 was used in the original Lockheed XP-80, forerunner of a long line of jet interceptors. North American Aviation used its J47 in the F-86, which achieved such a notable record in Korea. Today's Air Force hot-rod, Lockheed's record-breaking F-104, obtains its thrust from the GE J79 as does Convair's supersonic B-58 bomber. And the J79 is the military engine from which the CJ805 was developed for the 880.

But GE never before had undertaken a commercial engine for the airlines and was up against a competitor with 30 years of airline experience in Pratt & Whitney, whose engines power both the Boeing 707 and the Douglas DC-8.

Coming into the market after Boeing and Douglas had skimmed off a substantial portion of the cream, Convair set out to design an airplane that would be faster than either the Boeing 707 or the DC-8. It picked the GE CJ805 as the primary powerplant to accomplish this end. Being fully confident that it had the best airplane-engine combination, Convair made no attempt to offer an alternate engine installation, such as the JT3 (J57), although this could be accomplished if a customer would be willing to foot the bill. The conversion cost, however, would come high.

"Engine performance has been outstanding," said Don Germeraad, Convair-San Diego chief engineering test pilot, in discussing the 880's flight test record to date. And, touching on a subject important to airline customers, "the specific fuel consumption looks very good at this point," Germeraad added.

The flight test program on the Convair 880 utilizes three airplanes. Two are now flying and the third aircraft, Airplane No. 4, the first to embrace a completed cabin interior (No. 2 is the static test airplane), is now being prepared to enter the program. It will fly August 10. This airplane will be used for acoustics, pressurization and air condition testing and subsequently for functional and accelerated service testing. Systems will be checked out on this airplane, including the autopilot. Convair will certificate both the Sperry SP30 and the Bendix PB20 on the 880.



Convair-San Diego's chief engineering test pilot, Don Germeraad (left) and his associate, John Knebel, in the cockpit of the No. 1 Convair 880.

Convair actually is more than pleased with the test program on the 880 despite the publicity over the incident in which sections of the vertical stabilizer and rudder were carried away in a flight to check vibration and flutter limits. Convair had a hint of what could happen in the high speed areas in the windtunnel so its engineers installed flutter dampers, two on each of the primary surfaces. When there was no problem, the flight test section decided to find out what would happen if the dampers were removed. Convair repaired the damage, reinstalled the dampers and flight test again took the airplane out to maximum G and maximum Mach number without incident.

Of particular satisfaction to chief test pilot Germeraad and his associate, John Knebel, who has done most of the flying with the No. 3 plane, is the lateral stability of the 880. "Lateral control is the best of any airplane I've flown," declared Germeraad.

One of the innovations on the Con-

vair 880 is an air data computer called the "ADVISOR," standing for Advanced, Intergrated, Safety and Optimizing Computer. It was developed by the John Oster Manufacturing Co. to meet requirements established by Germeraad, who felt the captain of a jet transport should be equipped with a monitoring device for best performance.

One portion of the unit, a takeoff monitor, which indicates minimum safe takeoff indicated airspeed up to V_1 on a marker on the standard IAS meter, is installed on the No. 1 flight test 880. The complete air data computer will be installed for test in the No. 3 airplane.

Information supplied by the complete system includes: (a) required airspeed for best climb; (b) range and time remaining at present altitude and airspeed; (c) optimum range; (d) optimum endurance time; (e) best airspeed for approach; (f) percent thrust required for takeoff, best climb, optimum range cruise, optimum endurance cruise and best approach.

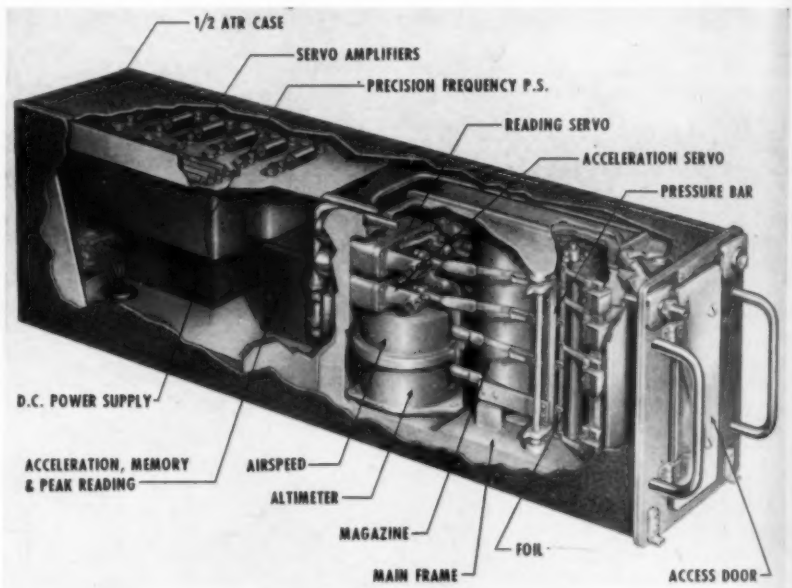
It's all automatic

All operations of ADVISOR are automatic. Here's how it works: After a flight plan is filed, the airplane loaded, check-listed and taxied to the flight line, an engine thrust check is performed. In the "Takeoff" mode the system provides an automatic indication of the required takeoff thrust. If the flight plan is changed or if traffic load delays the takeoff, the pilot can run a quick range check on ADVISOR to see if a refueling stop is necessary. On the takeoff dash the monitor provides the pilot with a continuous indication of the required airspeed build up to V_1 velocity by driving a marker around the scale of the indicated airspeed instrument. If the plane loses an engine or hits a puddle, the monitor shows him how his takeoff speed is being affected. He doesn't have to wait for a go-no-go signal to decide what to do.

After lift off and clean up, ADVISOR is switched to "Climb." IAS is indicated based on minimum block fuel usage and structural limitations. After reaching cruising altitude, the results of a number of range and flight time calculations are continuously available. For example, if present airspeed and altitude were to be maintained constant until the fuel is exhausted, how much range and how much flight time remains? Or if any emergencies occur, such as engine malfunction, the pilot has a readily available indication of range and flight time remaining as well as airspeed for maximum range or maximum endurance. The system may also be used to find altitude for maximum range or for maximum endurance. All of these calculations are automatic and require no reference to the flight handbook.

For landing, ADVISOR is switched to the "Approach" mode. A value of command IAS based on aircraft gross weight and flap position is indicated during approach. This airspeed is gradually reduced so as to bring the aircraft across the fence at the minimum safe airspeed.

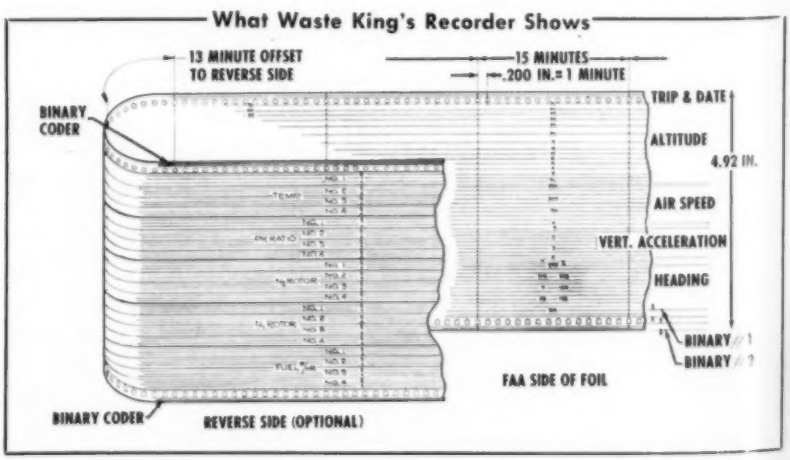
The complete air data computer weighs 27 pounds.



20-lb. Flight Recorder Fits New Jets

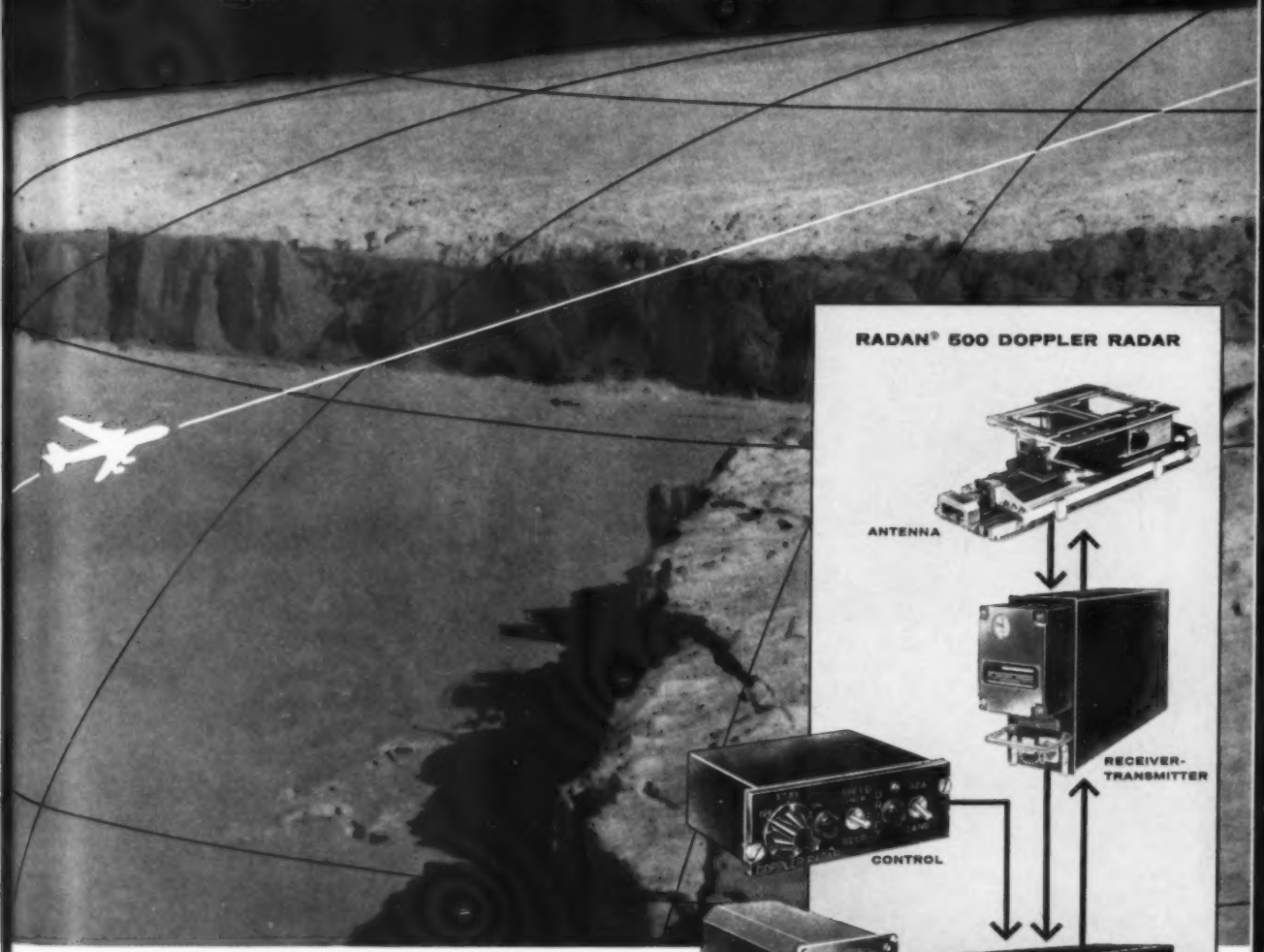
Putting its foot in the door of transport aircraft business, Technical Products Div., Waste King Corp., has sold 80 Model 5424 flight recorders to United Air Lines and 40 to Eastern Air Lines for use on DC-8s.

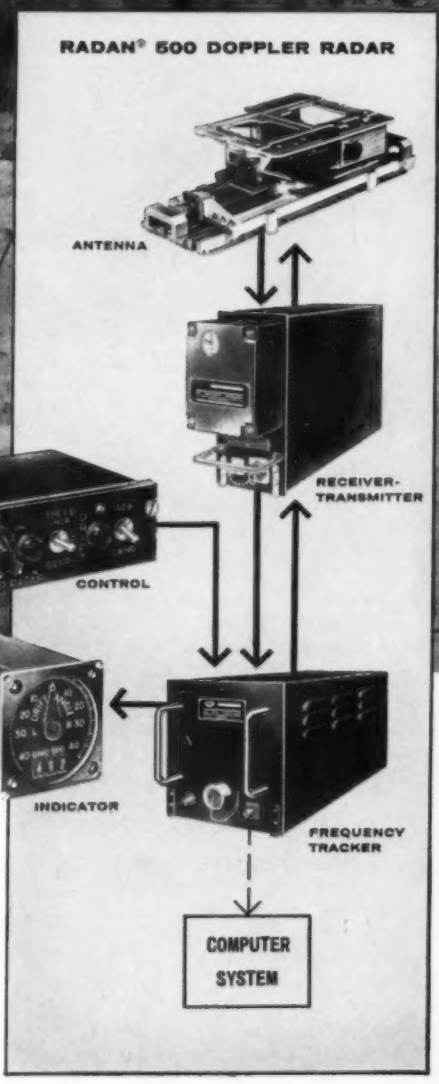
Designed to meet basic FAA requirements that all jet transports carry instrumentation to record time, altitude, vertical acceleration, air speed and heading data, the recorder may be modified to handle additional information. A total of 30 data channels is available at customer option—24 ana-



Reliable RADAN 500

GPL's new commercial Doppler system





RADAN 500 Doppler radar, GPL's all new ARINC system for airlines, offers the reliability and longevity of service that only 13 years of direct Doppler experience can insure...reliability resulting from **flight-proven** designs based on 10 years of product improvement programs, service feedback on more than 1,500 operational GPL Doppler systems, and special attention to the design and maintenance philosophies of commercial airlines.

SELF-CONTAINED: Ground speed and drift angle, displayed directly, continuously, and accurately — over the poles, over oceans, over any terrain, day or night, good weather or bad — provide a dramatic extension of airline capabilities and important operational savings.

VERSATILE: Outputs for navigation computers, flight directors, autopilots, remote indicators, and attachments. Write to the world's most experienced Doppler manufacturer for further details on RADAN 500.

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log, time, trip and date, plus four binary channels.

The 20-lb. unit is self-contained with the exception of an accelerometer. A delivered system, however, includes the external accelerometer and all necessary connectors.

Development of the Waste King recorder was spearheaded by Technical Products Division head Sam Gilman. Gilman, who formerly supervised tape instrumentation at Consolidated Electrodynamics, was brought to Waste King primarily to get the company into the electronics field.

In late 1957 when earlier tape recording techniques appeared to be unsatisfactory for FAA and Arinc specifications, Waste King was ready to shelve ideas of building a recorder. Gilman saved the day, however, and came up with a concept of selecting a usable medium for recording with the recorder built around it.

Gilman credits United Air Lines for much of Waste King's success with the flight recorder. United devoted considerable engineering effort to the project at a time when Waste King was sorely in need of orders to keep the project going.

Sales are Climbing

Sales are now climbing. Unit prices are based on the total number ordered with a minimum cost of about $6,500 for the five-channel model. Costs to the customer will drop as additional orders come in, with a floor set at approximately $5,785.

Waste King has selected a high-temperature resistant steel alloy foil as a recording medium to fulfill FAA environmental requirements. Flight records are produced by periodically scratching through a coating on the foil to leave a visible trace on the background.

Recording stylus is a three-in. long arm with a diamond edge scribe in one end, and an actuator connection on the other.

Although a considerable amount of force is required for foil marking, stylus drag is eliminated by "floating" the scriber at zero friction until a recording is made. To record, the cam-operated pressure bar forces the scriber against the surface coating, the foil is moved approximately 0.0015 in., and the scriber instantly released from foil contact.

The process is repeated each one-half second. To maintain a constant time/data relationship, all scribers contact the foil simultaneously—requiring only one foil motion. Scriber and foil actions are synchronized to minimize possibility of losing a record. Timing is accomplished without actuators by a highly accurate escapement movement which drives the foil at one foot per hour. Sprocket holes in the foil are spaced exactly one minute apart.

Recording foil, plus all necessary rollers and engagement devices, is contained in a replaceable magazine which officials say can be removed and replaced in less than one minute. It holds 200 ft. of foil—sufficient for 200 hours of operation.

Back of "FAA" foil side provides additional channels if desired. Conversion to two-side recording includes installation and wiring of servo motor systems, servo amplifiers, plus the pressure bar and bar actuator. No magazine modification is required for two-side recording. The foil is designed for two-side use, requiring only the addition of customer-specified calibrations.

The five-channel FAA requirement may also be set up to cover both foil sides to double recording time.

With calibrations printed directly on the foil, no overlays are required for visual inspection, but optical magnification may be used for precise analysis.

Claimed to meet or exceed both FAA and Arinc requirements, the recorder offers "drop-on" damage protection also in event heavy components fall on the unit.

New Base Pays Off at Mohawk

Mohawk Airlines is undertaking what it feels is the largest single airframe project in local service airline history by modifying two Convair 240s to include integral doors and 46 seats at savings averaging $24,000 per aircraft.

This is the cost reduction its maintenance officials estimate the "do it yourself" approach will realize, a project made possible by Mohawk's new $3 million maintenance and headquarters base at Utica-Rome, N.Y. The savings compare with a similar program undertaken several years ago via an outside contract in which the total bill for five Convairs amounted to $400,000.

The modification represents an overall economic improvement of 15%, based on the increased seating capacity. At Mohawk's present yield of about .077¢ per revenue passenger mile, coupled with the carrier's present load factor of 56%, the additional seats should provide Mohawk with an additional $1,600 revenue per month per aircraft.

Result of modification on Mohawk's seat mile cost is to increase productivity by 15%. Because of short hops (stage length is approximately 80 miles), Mohawk operates its Convairs about 15% slower than comparable trunk lines. By adding six seats, Mohawk regains this 15% productivity in seat miles per hour flown.

The two Convairs involved came to Mohawk from Swissair with rear entrance loading and a forward buffet. The modification includes removal of the left-hand forward cargo door; reskinning of the door area; installation of right forward integral airstair door; removal of buffet; installation of two-passenger lounge and new cabin window in rear; forward move of front bulkhead; installation of one row of aft-facing seats and carry-on baggage rack in front of cabin; and modification of radio rack.

Mohawk beefed-up the structure around the new rear window and installed belt frames in the airstair door area. All electrical and hydraulic lines on the right hand side of the aircraft

had to be re-routed to make way for the door assembly, purchased from Convair. No left-hand integral step door is available for the Convair 240.

Modification represents a new weight increase of approximately 300 pounds, two-thirds of which is in the door assembly. Remainder consists of the six seats, carry-on rack, and cabin extensions of light and heat ducts, headliner and overhead racks.

Mohawk personnel spent 11,240 manhours on modification of the first Convair; they estimate a learning curve reduction to about 9,200 manhours on the ship just entered.

Aeroquip Updates Operators On Aircraft Hose Problems

How can operators judge the useful life of aircraft hoses?

Why does used hose suddenly fail after having passed proof testing at overhaul?

What are the peculiarities of Teflon, and how toxic is it?

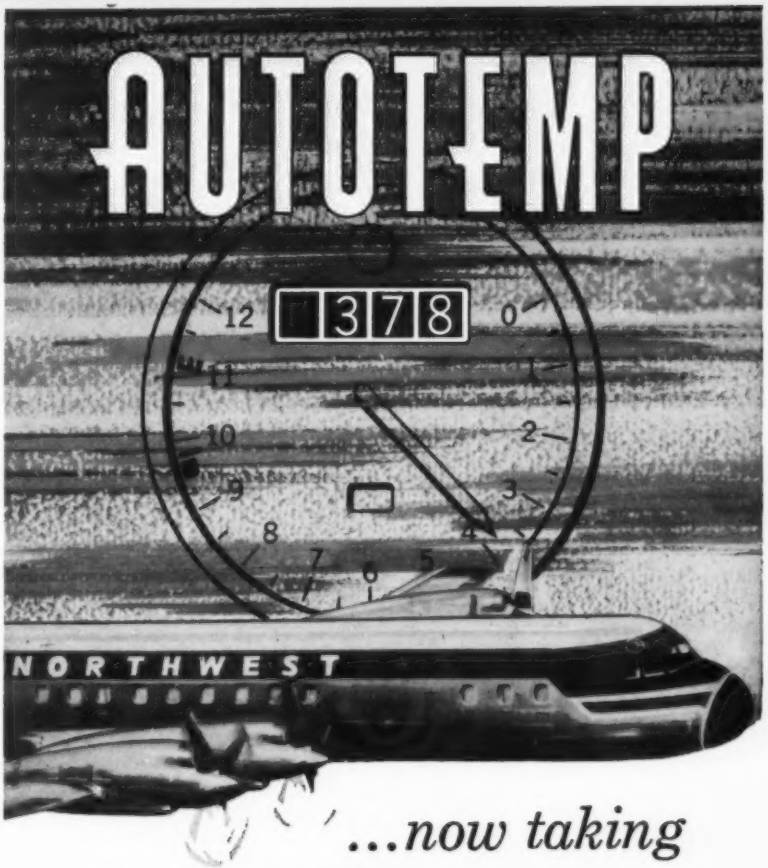
These are a few of the questions asked at air transport operators conference sponsored by the Aeroquip Corp. More than 40 top maintenance men from 10 airlines and three business flying fleets gathered at Aeroquip's Jackson, Mich. plant recently to learn about the latest developments in aircraft plumbing and to find the answers to problems they are having.

Airlines attending were American, Pan Am, Eastern, Delta, United, Capital, Trans-Canada, Trans Texas, Mohawk, and North Central. Business fleets represented were General Motors, Gulf Oil Corp., and the Tennessee Gas & Transmission Co.

In the discussions, most operators expressed doubt about when to throw away a used hose. Bob Young, Aeroquip's chief inspector, explained that visual inspection at overhaul is still the best method. When a hose becomes stiff and set, it's probably best to discard it.

Young pointed out that when operators proof-test hose at overhaul, the pressure is usually run up to the same value the factory uses on new hoses. This pressure is generally much higher than the hose meets in actual service, and may actually weaken it and cause it to fail without warning. Operators should proof-test used hoses to a predetermined percentage of the original rating.

Many customers, just beginning to use Teflon hose, were not clear about its habits. Products engineer George Swick outlined the basic properties. He



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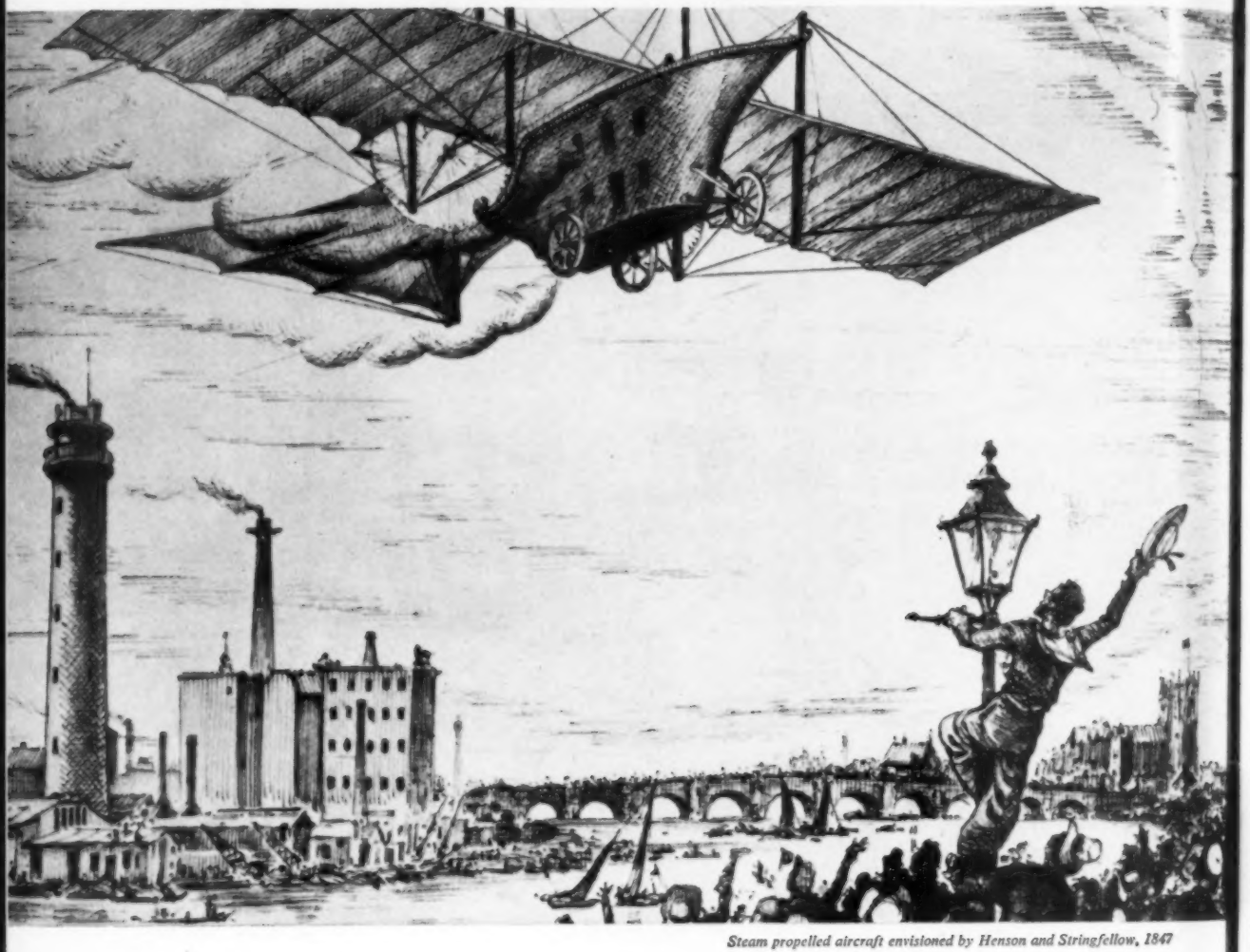
Circle No. 7 on Reader Service Card.

Propulsion through the ages . . .



Steam propelled aircraft envisioned by Henson and Stringfellow, 1847

An astounding proposal : in 1847, William Samuel Henson and John Stringfellow collaborated on the design of the "Aeriel" and produced a model. A steam engine was designed to drive two propellers by means of cords from a large crankshaft pulley. Experiments in Gloucestershire continued seven weeks. Annoyed by irreverent crowds and heavy airs the aeronauts attempted night flight, only to be grounded by dew on the silken wings. More recently in Gloucestershire, where Rotol is located, Rotol designed, developed and produced the propellers for the first turbo-prop aircraft (1945). Since then, Rotol has supplied turbo-props to more than 100 airline and aircraft operators throughout the world who attest to Rotol reliability. Rotol propellers are standard equipment on the Vickers Viscount, Fairchild F-27, Grumman Gulfstream and Fairey Rotodyne.

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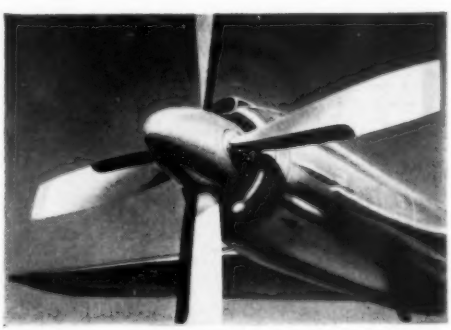


Rotol Incorporated after-sales service throughout the United States provides immediate spare parts delivery, technical service on propeller operations and applications.

For information on Rotol products and after-sales service, call Rotol Incorporated, 409 Jefferson Davis Highway, Arlington 2, Virginia. Phone OTis 4-6290

said that Teflon must be firesleeved because of its tendency to pass into the gaseous state at temperatures above 500F. Teflon is not nearly so toxic as many believe, Swick stated. Though it may cause temporary illness, it is not likely to be fatal in the amounts encountered in maintenance shops.

GE's T64: Turboprop, Turboshaft or Turbojet

General Electric has taken the concept of flexibility to heart in its design of the T64. With helicopter gearing, the new engine is a 2,650 shp turboshaft. By adding planetary reduction gears, it becomes a 2,570 eshp turboprop.

By removing the shafts and gearing, it can be used as a direct drive engine, turning 13,600 rpm and producing 2,690 shp. If necessary, GE says, the engine could be used as a 1,500 lbs.-thrust turbojet or become a turbofan of approximately 2,500 lbs. thrust.

Specific fuel consumptions for all these versions are around 0.5, making each practical from the standpoint of economy.

One possible assignment for the engine is the Sikorsky S-60 "flying crane." Sikorsky has said that it will use the T64 if Pratt & Whitney is unable to come up with a comparable engine.

The engine itself is the same for both the turboshaft and turboprop version, with only the gearing altered.

Test program for the T64 is running well ahead of schedule, and GE expects to begin flight testing sometime next year. The turboprop engine was first run in January and the turboshaft was run in March, both two months ahead of their respective schedules. The -4 turboprop will complete its 50 hr. pre-flight rating test next May, some two months ahead of the -2.

Specs on the T64

T64-GE-2 Turboshaft

shp	2,650 (military)
sfc	0.506
Engine weight	854 lbs.
Shaft speed	5,200 rpm
Altitude	15,000 ft.
Speed	100 kts.

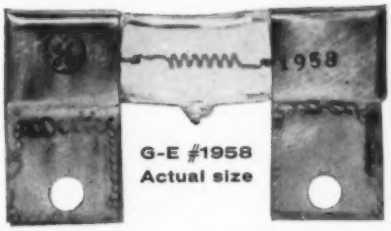
T64-GE-4 Turboprop

eshp	2,570 (military) net thrust is 565 lbs.
esfc	0.522
Engine weight	1,079 lbs.
Shaft speed	1,150 rpm
Altitude	20,000 ft.
Speed	370 kts.

T64 Direct Drive Engine

shp	2,690 (military)
sfc	0.498
Engine weight	710 lbs.
Shaft speed	13,600 rpm (at front face of forward frame)

New G-E Quartz wingtip lamp packs 150 watts into this tiny bulb



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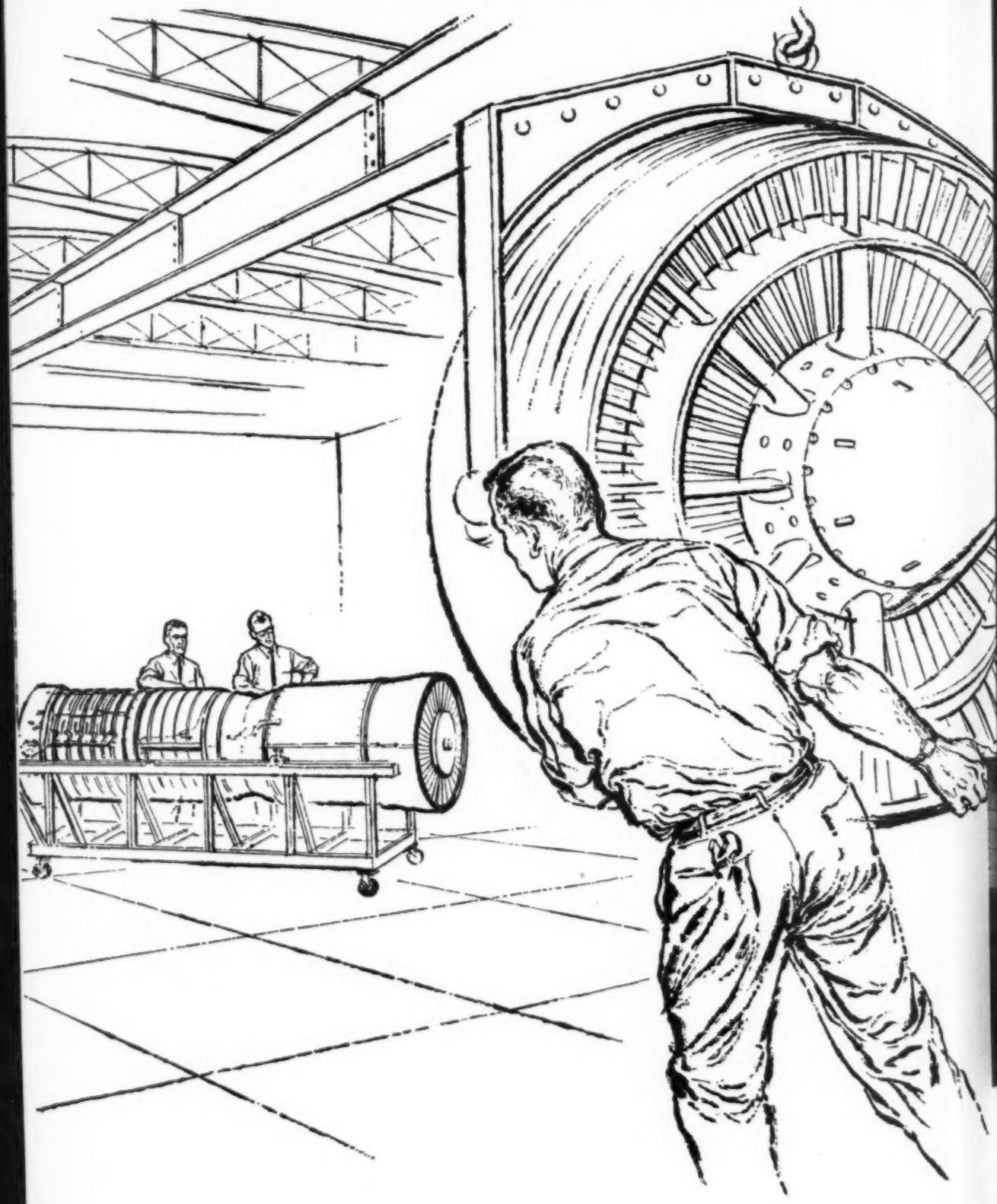
Progress Is Our Most Important Product

GENERAL ELECTRIC

Circle No. 16 on Reader Service Card.

General Electric's AFT fan unit provides



DESIGN SIMPLICITY

By placing the fan unit *aft*, General Electric engineers produced a simple design for advanced turbofan engines. General Electric's turbofan is built around the same highly reliable, single rotor, variable-stator compressor gas generator design which has already been proven in thousands of hours of operational flying by the J79.

Aft of this basic gas generator, a single-stage turbine/fan combination is added. Addition of the fan assembly, which requires only two bearings, leaves the gas generator hardware unchanged and its operating characteristics unaffected.

Aft placement of the fan offers these important operating advantages:

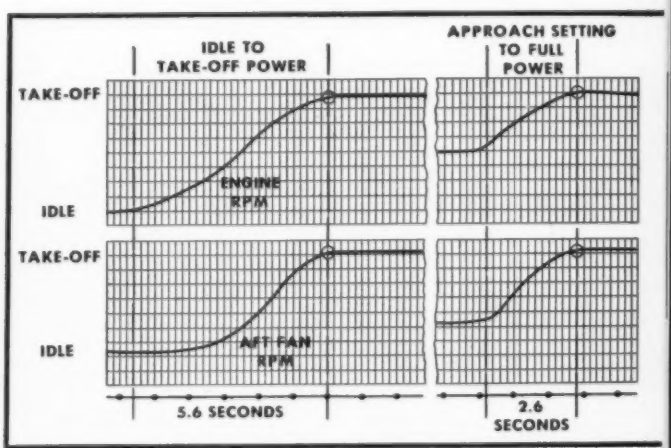
- Lower fan blade tip speeds, with thoroughly proven low aspect ratio transonic blading
- Simplified thrust reversal—one reverser handles both fan and engine exhaust
- High resistance to foreign object damage—rugged single-stage fan blading has high impact strength, and its *aft* placement eliminates the possibility of fan damage causing main engine damage
- Intricate anti-icing system unnecessary—fan structure is warmed by exhaust gases
- Growth flexibility—fan and gas generator performance can be advanced independently

Turbofans offer greater fuel economy, bigger payload and longer range. The *aft* fan provides these advantages without compromising gas generator operating characteristics, and placing the fan *aft* yields the simplest possible mechanical design. For more information, write to Section 235-36, General Electric Co., Cincinnati 15, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

General Electric presents a line of simple, reliable turbofan engines that will deliver excellent, economical performance with low maintenance costs.



Tracing shows quick, stall-free throttle response of engine and fan during operation of a G-E aft fan engine. Aerodynamic coupling gives instant, positive, continuous control of fan speed, without mechanical connection between engine and fan rotors.

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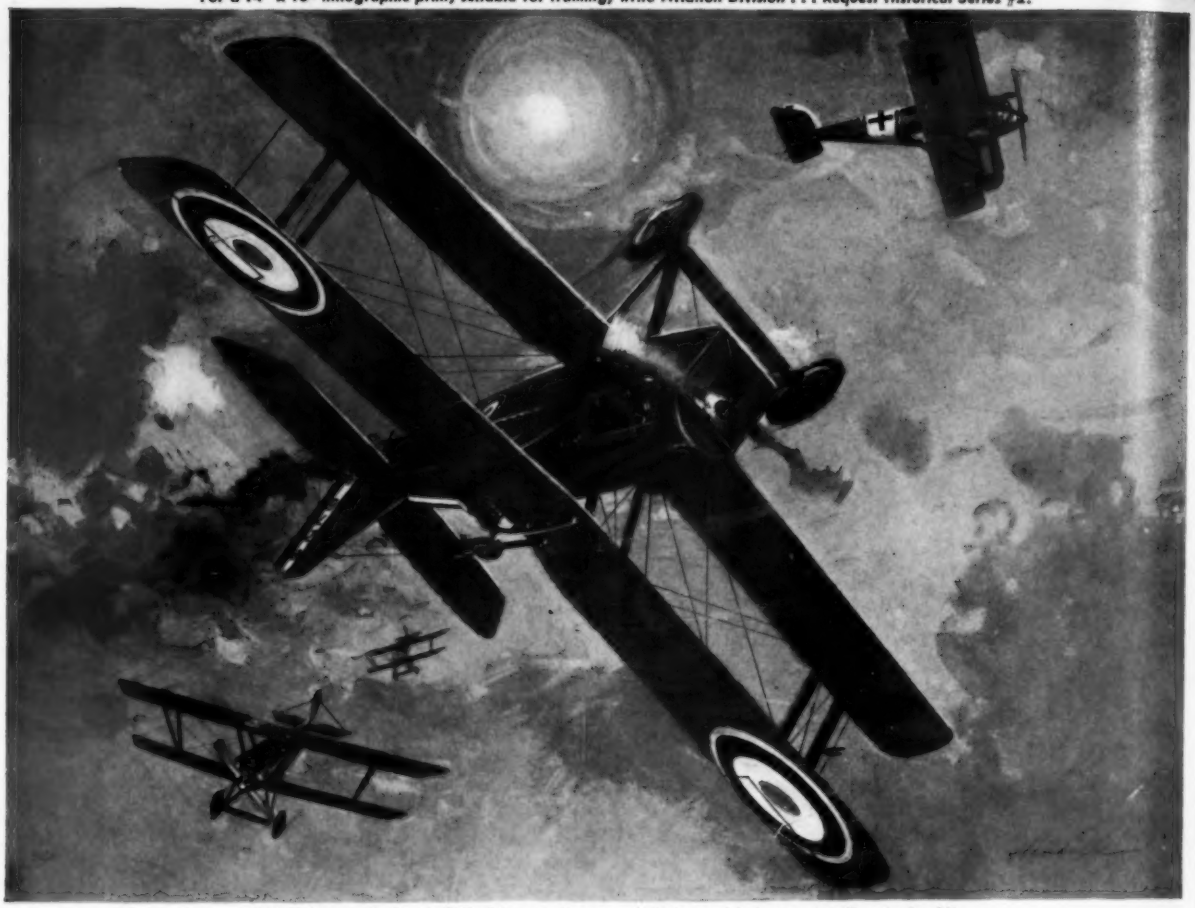
For a 14" x 10" lithographic print, suitable for framing, write Aviation Division . . . Request Historical Series #2.



Major Mannock, in his S.E. 5A, outwits overwhelming odds by pretending to be hit.

Early War Birds— THE S.E. 5A

The S.E. 5A was one of the outstanding British fighters of World War I. When fitted with a 200 h.p. Wolseley Viper engine, it had a maximum speed of 132 m.p.h. at 6500 feet, a ceiling of 20,000 feet, and an endurance of 2½ hours. Although it lacked the quick maneuverability of some designs, the S.E. 5A more than made up for this failing by its extra speed in level flight, great inherent stability, and a structural strength that permitted diving at high speeds. Armed with a synchronized machine gun on the cowling and a Lewis gun on the top wing, the S.E. 5A was a remarkably stable "gun platform" that permitted accurate shooting, even at extreme range.

Of all the great British fliers who flew S.E. 5A's—McCudden, Ball, Rhys-Davids—none was more admired than Major Edward "Mick" Mannock . . . a leading allied ace with 73 victories. Aside from being a skilled pilot, an accurate marksman and a master tactician, he was a good leader who watched over and nursed novice pilots in combat.

In one recorded incident on May 28, 1918, Mannock made himself a "sitting duck" to save a comrade being harassed by a flight of Pfalz. His less experienced companion got clear while Mannock held the Germans off. He then made his escape by pretending to be hit . . . spinning down on his back, apparently out of control. When his pursuers pulled up to watch him crash, Mannock pulled out and made for the Allied lines in a long dive.

A month later, while escorting a new pilot on an indoctrination flight over the lines, Mannock was killed by a bullet from a German infantryman. He remained to the last, unconquered in the air.

Phillips 66

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Circle No. 24 on Reader Service Card.

ARINC Group May Tackle Rescue Beacon Spec

At long last, the move apparently is on to push the development of an up-to-date aircraft search and rescue beacon.

Aeronautical Radio, Inc.'s airlines electronic engineering committee is considering development of an equipment characteristic that would set down airline desires for such a unit.

Much of the preliminary work is reportedly being done by United Air Lines under Frank Todd, superintendent of aircraft radio communications. AEEC expects to discuss the project later this month at its meeting in Los Angeles.

During a recent Rescue Beacon Conference sponsored by Flight Safety Foundation in New York it was generally concluded that the 36-lb. "Gibson Girl" now required by FAA rules for overseas airlines has outlived its usefulness. Both Telefunken in Germany and Phillips in Holland reportedly are developing replacements for the Gibson Girl and a firm called Clifford & Snell, England has developed a liferaft transmitter/receiver.

UAL Gets Good Results in AMP Terminal Test

United Air Lines reports that some 480 AMP taper pin terminals service-tested in a Douglas DC-7 operated for 5,816 hours flight time without failure of terminals or wiring.

The UAL test, intended to evaluate the AMP, Inc. terminals for airline service, consisted of wiring a "test box" with 480 terminals joined by 200 ft. of nylon-jacketed, No. 22 stranded aircraft wiring and mounting it in the inboard nacelle of a DC-7. Included in the test box was a fuse holder, dual Korry lamp holder, elapsed time clock and a power cable A-N connector.

Less Bookkeeping, More Computers for ATC

FAA has taken another big step toward easing the paperwork and bookkeeping chores of traffic controllers.

A Remington Rand Univac system of air traffic management is slated to start operation at the Washington, D.C. and New York International Air Route Traffic Control Centers within the next few weeks. Other units are to be installed later this summer at Boston, Cleveland, and Pittsburgh Centers.

When the presently scheduled network is in operation, it will be able to monitor all IFR traffic in the northeastern U.S.

Essentially, the Univac is designed to relieve controllers of bookkeeping chores required in drawing up flight plans. Univac will receive and store flight plan information and make it instantaneously available. The computer will be able to give the estimated time any particular airplane will be over a particular fix and when it should reach its destination.

The flight plan information is assembled and printed by the machine on flight progress slips. These strips are then automatically distributed to other centers concerned with the flight.

Information about each possible flight plan to be handled, such as the layout of the airways and the distance between fixes, is stored on magnetic drums. The information can be summoned in about 1/60 sec. with any number of operations going simultaneously.

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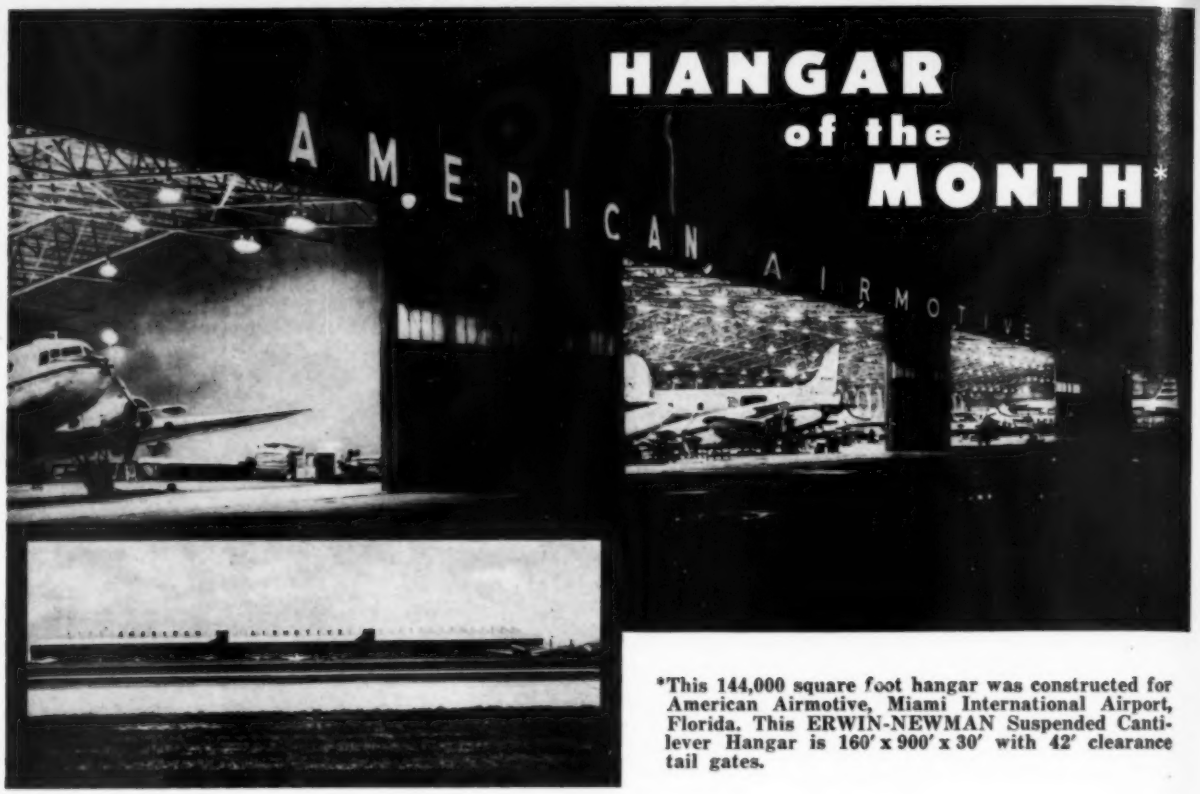

*This 144,000 square foot hangar was constructed for American Airmotive, Miami International Airport, Florida. This ERWIN-NEWMAN Suspended Cantilever Hangar is 160' x 900' x 30' with 42' clearance tail gates.

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THE ERWIN-NEWMAN SUSPENDED CANTILEVER HANGARS ARE COVERED BY UNITED STATES PATENT No. 2,687,102, and similar foreign patents issued to us and under which we hold exclusive rights. We have not (at this writing) issued any licenses or other authorization for the design, engineering, construction, or use of these patented hangars. The Erwin-Newman Company must, and will, protect its rights under these patents against infringements.

Circle No. 20 on Reader Service Card.

Reading: Business Aviation's Best Show

READING, PA.—Makers, sellers and users of business airplanes made their tenth annual trek here June 5 for what has become one of the major events of the year in aviation, the Reading Aviation Service maintenance and operations meeting.

Actually, it is more of a show than a meeting. Forty-seven exhibitors, including virtually every important manufacturer of aircraft, engines communications and navigation equipment displayed their products in booths set up in RAS' main hangar.

Some 500 owners or operators of a wide variety of planes, ranging from an "antique" Waco 10 to a flashy Fairchild F-27, owned by the Westinghouse Electric Corp., which was acclaimed the "Flagship of the U.S. Industrial Fleet," flew in to the picturesque Reading Municipal Airport for the show.

Chief architect of the event is handsome, polished Alfred (Sime) Bertolet, president of RAS which operates one of the most successful maintenance and overhaul bases for general aircraft in the country. His purpose, as he made plain in his welcoming address, is to provide a marketplace for new ideas, advancements and techniques in general aviation, maintenance and operations.

Prizes were awarded to five categories of aircraft: antiques, single-engine, twin-engine under 5,000 lbs. gross weight, twin-engine between 5,000 and 12,500 lbs. gross weight, and twin-engine over 12,500 lbs. gross weight. And, of course, there was the special "Flagship" prize. Runner-up for this honor was the Gulf Oil Co.'s Gulfstar, which also won first prize for the best exterior of any aircraft over 12,500 lbs. gross weight.

In the twin-engine under 5,000 lbs. class, a Cessna 310 owned by the New York Wire Cloth Co. was judged to have the best exterior, while a Piper Apache owned by Dr. William Prescott took the prize for best interior. A Beech Travelaire owned by Richard D. Clemson was picked for the best equipment and instrumentation award. The Cessna 310 was also named for the best of class prize.

In the twin-engine, 5,000 to 12,500 lbs. class, a Beech C-45G owned by the Brockway Glass Co. was judged to have the best exterior, while a Beech E-18, owned by the H. L. Cable Construction Co., won three prizes: best interior, best equipment and instrumentation and best of class.

In the "heavyweight" class (twin-engine aircraft over 12,500 lbs.) another F-27, owned by the Noland Co., was judged to have the best interior, while a Learstar owned by the Island Creek Coal Co. won the prize for best equipment and instrumentation.

Among the many new products and equipment seen at the show were the following:

B. F. Goodrich Aviation Products' lightweight pneumatic de-icer systems for the Piper Apache and the Cessna 310. Weighing approximately 50 lbs., the Apache system operates on compressed air stored in a compact plastic accumulator, guaranteed for 10,000 recharges at 3,000 psi. The accumulator is said to provide enough energy for seven hours of de-icing action with each full charge when operated on a three-minute cycle.

In the Cessna 310, 35 lbs. of its total weight of 50 lbs. can be removed for extra load capacity during summer flying.

National Aeronautical Corp.'s MBT marker beacon receiver. This self-contained 75 megacycle unit weighs only 18 oz., requires no separate receiver unit or power supply. It can be connected to the aircraft's audio system for aural indication. Priced at $230, without cable or antenna.

Don Hoskins' (4980 Marine Drive, Chicago) Twilighter T-24, a transistorized powerpack with three individual flashing lights, an unusual collision avoidance lighting system. One light unit is installed in each wingtip, the third on top of the fuselage or in the standard light bracket on the vertical fin. Total weight is 12 lbs., electrical demand five amperes. Price, $800.

Other Hoskins collision avoidance lighting systems are the Twilighter Junior, consisting of a powerpack and two light units and weighing 5 lbs., which is priced at $400, and a D-24, which is the same as the T-24, except that it is powered by a Carter dynamotor.

Twilighter light pods, for pilots who prefer external light mounting, or for aircraft which have thin wingtips, are priced at $95 per pair. Pods are mounted on the underside of the wingtips, weight one pound each.

Flagship of the U.S. business fleet, named at Reading show, is this Fairchild F-27 operated by Westinghouse Electric Corp. Interior is by Horton & Horton. Another F-27, with interior by Dave Ellies, took best interior award.

New Business Flying Base Is $500,00 Terminal

Air Oasis, world's largest Cessna distributor, has opened its new $500,000 facility at Long Beach, Calif. The new base has complete maintenance and parts shops plus sales offices, pilot's lounge, conference room, show room, and visitor's offices.

Air Oasis employs 73 people and will offer fuel sales and repair 24-hrs. per day. Company president L. W. Hunt says Air Oasis hopes to become the leading business aircraft terminal in the Los Angeles area.

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Circle No. 27 on Reader Service Card.

By CAPT. J. D. SMITH

It's Open Season on Airline Pilots

Everyone wants in on the act when it comes to "improving" airline pilots. This appears to be the theme of many as commercial turbojet operations expand. Constructive criticism will *never* hurt — however, propaganda designed to further unsupported personal feeling *could*, if not effectively thwarted.

An airline pilot is in a unique position in that he may be viewed by others from everything related to a boob through being a true professional. Oftentimes the low-level appreciation of airline pilots is the result of frustration or petty jealousies by others. Professionalism is accepted by those who realize that competence and teamwork by many are needed to get the job done safely.

Supporting the airline pilot group would serve little purpose. The effort would obviously be considered biased. But, let's look at some facts.

Few people realize that an airline pilot represents more than a $50,000 investment by an airline. Jet operations will rapidly spiral this figure to $100,000. Probably no other civil industry has this amount of investment in individuals. Obviously, management wants a return from this high expenditure as long as it can be done safely.

The seniority pitch

The big pitch in attacking the "seniority concept" at this time is apparently that pilots are "taking longer than anticipated" to qualify on jets.

An objective analysis of time required to qualify on commercial jet aircraft is rather interesting. After General Caldera (Mr. Safety of USAF) spoke at a recent Aviation Writers Association luncheon, I asked, "How much ground school and flight time is given a military pilot transitioning to a B-47?" He replied, "300 hours ground school—40 hours minimum flight time."

Bear in mind that this USAF transition is for the "cream of the crop"—military pilots who have already undergone a couple of years of rigid training—a military group that, in my opinion, is second to none. General Caldera advised that the program would probably be expanded to 105 hours flight time, principally for maneuvers.

By comparison, "the longer than anticipated time" being required by the airline pilot actually is approximately half that of the USAF (160 hours school—20 hours flight). In addition, FAA inspectors approve every captain checking out on these new aircraft. Obviously then, it is correct to assume these pilots *are* qualified.

For many years, various groups have been attempting to put the airline pilot in a laboratory where he could be dissected by all who wanted a whack at him. Certainly there is a need for aviation medicine—most assuredly there are physical conditions which must deny a medical certificate. However, conclusions should be based on fact, particularly when such a decision prohibits continuation in one's profession.

Some medical men strongly advocate forced retirement well below age 60. Primary reason seems to be concern of the risk involved. It appears medical men are worried that the pilot over 60 may become incapacitated. This must be their main concern, because procedures have long been established to insure competence. Unfortunately, incapacitation not only hits those over 60. In fact, statistics clearly show this problem of incapacitation is greatest below age 45. The problem is not what to do with those at 60 but rather, what is needed to insure reaching 60.

The problem of incapacitation can never be safely handled solely by a medical approach. The solution rests with combining preventive medicine and insuring maximum competence capability of all flight crew members. Just recently a 28-year-old copilot became incapacitated in flight—walked off the aircraft and dropped dead on the ramp. This incident was safely handled. A jack-of-all-trades type of crew, regardless of size, will always handle the problem whether it be old age incapacitation or cramps.

Pilot retirement is a subject causing mixed emotion among the airlines. Some want it at 60; others refuse to agree there is a problem. One thing is certain, however: should an unrealistic forced retirement be implemented, reducing an airline pilot's life span to that of a baseball player, recent labor unrest in the industry will look like a picnic. There will be no alternative but to get the most while one can before being put out to early pasture.

The fantastic challenge

The airline industry is facing a fantastic challenge with the jet age. Current passenger volume will not economically support this transition. We must generate a considerable amount of new business from new people, many of whom have never flown. We're out to take the people from busses and automobiles—cause persons to travel for the first time. We must assure the new element that the man and machine perform safely and efficiently.

It may be helpful for some of the frustrated critics to bear in mind that their efforts are actually not a criticism of the pilot group but rather a condemnation of the manner in which FAA and management are implementing new equipment. Regardless how anyone may feel, FAA and management are responsible to insure competence. If you have it, you fly—if not, you don't. It's that simple.

As individuals, airline pilots are not perfect. Free speech is still a way of American life. Let's assure the debates do not cast unwarranted blemishes on an industry desperately in need of realizing a substantial growth.

Automatic antenna selector

Autonetic's new two-pound *Automatic Antenna Selector* eliminates antenna shading in military and commercial aircraft. Used with dual-antenna systems, it assures a strong, continuous signal. Does away with manual switching and losses due to coaxial tees in the antenna feedlines. Simple to install . . . has a 10,000-hour operating life with minimum maintenance . . . completely reliable during high-speed maneuvers and in environmental extremes. Meets stringent military requirements. Please write for literature.

Autonetics

A Division of North American Aviation, Inc., Downey, California

Circle No. 21 on Reader Service Card.

Holley Announces A Nationwide Service Network of Commercial

Service or replacement of Holley's compressor bleed governors, bleed pistons and bleed valve actuators is now immediately available throughout the U.S.

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In 14 key areas throughout the U. S., there is now a competent Holley service shop readily accessible to airlines flying the Boeing 707 or Douglas DC-8. These service outlets are fully equipped and stocked branches or main service departments of three well-known aviation parts and service distributors: Pacific Airmotive, Southwest Airmotive, and Airwork.

Each of these distributors has personnel specially trained in the servicing of Holley aircraft products and each maintains a stock of both assembled units and components of Holley compressor bleed governors and actuators. Replacement or service of these jet engine accessories is literally only minutes away from any metropolitan center.

If you would like a complete brochure of Holley products, facilities, and service outlets, simply address the Aircraft Division at Holley.

West Coast and other Western states airlines and commercial customers are serviced through the several branches of the Pacific Airmotive Corporation and its subsidiaries

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Facelifting for Executive Transports

There are four Convairs in the shop at AiResearch Aviation Service Co. at Los Angeles International Airport undergoing rework.

Holzapfel

One is a former United Air Lines 340 being converted into a 440 for National Cash Register by incorporating the Convair speed kit, new mufflers and additional soundproofing. Another one-time UAL 340 is being given the same uplift treatment for Johnson & Johnson. A third is an ex-American Airlines 240 being converted to the order of Frederick B. Ayer & Associates for the Copono Oil Co. The fourth is an airplane with a history.

This is a 12-year-old veteran, which was the No. 1 fuselage on the original Convair 240 line back in 1947, and the first of the series of more than 1,000 twin-engine transports produced by Convair-San Diego.

Turboprop to piston conversion

It was Convair's test airplane. After completion of the test program and certification of the aircraft, it became the first U.S. turboprop civil aircraft, the Convair Turboliner, as it was called. Its Pratt & Whitney R2800 engines were replaced by two Allison T38 turboprops of 2,750 eshp each and the aircraft engine division of General Motors used it as a test and demonstration airplane in the turboprop program that led to the development of the engines being used today to power the Lockheed Electra.

Now AiResearch Aviation Service has acquired the airplane from Allison and is redoing it into an executive for its parent company, The Garrett Corp.

In the Garrett plane the turboprop engines are coming out and R2800s are going back in. An interesting coincidence of this transaction is that it represents an exchange with turboprops in the other direction also. AiResearch Service acquired these two R2800s from a Convair 340 sold by Hawaiian Airlines to Allison. Allison replaced them with turboprop T56s to turn the 340 into a test aircraft and demonstrator for its turboprop conversion program for Convairs.

AiResearch Aviation Service has now accomplished interior modifications on a total of 91 Convair aircraft. Of this total 31 have been military interiors and 31 have been airline interiors. But it is as a producer of executive interiors for corporation-type aircraft that the Garrett subsidiary has gained a wide-spread reputation as a top producer. Its list of executive interior modifications adds up to 29. The list will grow, says Harrison Holzapfel, manager of AiResearch Aviation Service.

An upswing in business flying is in progress, Holzapfel declares, and there's also a definite trend toward improved equipment. One important factor in this respect has been the program instituted by Frederick B. Ayer & Associates in the used airplane market, Holzapfel believes. He points to Ayer's $385,000 package deal for a Convair 240 converted with a good executive interior, wing tanks installed, the airplane relicensed and ready to go.

Convair flexibility makes it an ideal executive-type aircraft for corporations that can afford the investment. There are few airports it can't manage. Its range can be increased to 2,000 miles by increasing the fuel capacity from 1,000 to 1,550 gallons. This provides one-stop transcontinental capability. Numerous companies flying DC-3s and other types are now looking toward Convairs, Holzapfel reports.

Next airline aircraft to follow the Convair twin-engine series into the corporation market, Holzapfel predicts, will be the DC-6. It won't be long either. "Before the end of the year," ventured Holzapfel.

Boeing 707 jets at $5 million per copy may seem on the lush side for the executive market, but they'll come, Holzapfel believes. "There are corporations that will have a special requirement which will make a large jet economical," he said.

From his background in the executive market, Holzapfel expects Grumman's Gulfstream to become a popular business aircraft and to bring work into AiResearch Service's shop in the installation of radio equipment, autopilots, instrumentation systems and interiors. It already has an order or two in the house.

DC-3 job was the start

AiResearch Aviation Service Co. was formed to modify a DC-3 acquired by the Garrett Corp. for company use. Its first outside company was the Chicago Tribune which had a Boeing B-17 bomber modified and customized in 1947. Since then aircraft have gone through the AiResearch Service base at Los Angeles in a progressive stream, Lockheed Lodestars and Douglas DC-3s for corporate customers; DC-4s and DC-6s for airlines; Beech Bonanzas and Cessnas for business flyers; Convairs both for military and civil customers.

It now has a payroll of 508—just over the limit for classification as a "small business"—and it engages in a variety of services. Its biggest dollar volume comes from the modifications and conversion of large executive-type aircraft, but it also carries on an extensive fixed base operation. This includes the fueling concession for transient aircraft putting in at Los Angeles International Airport, ramp service for international carriers such as SAS and Japan Air Lines and the basing and servicing the Ballistic Missile Division's fleet of 30 transport-type aircraft under contract to the Air Force.

Swank interior in Continental Oil Co.'s 440 is typical of AiResearch conversions.

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EXTRA SECTION

By FRED S. HUNTER

Boeing Airplane Co.'s system of numbering the various configurations in its jet transport family presents an interesting study. Especially, if you do a little reading between the numbers.

Pan American, for example, was the first carrier to place an order for Boeing 707s. The first 707s to be available were to be powered by P&W JT3C engines. PAA ordered six of these aircraft. Then it ordered 17 intercontinental models powered by P&W JT4A engines. Boeing's number for the first configuration is 707-121, for the larger aircraft 707-321. Boeing's system is to assign the last two digits of a series number to a customer airline. PAA is 21.

Second carrier to order 707s was American Airlines. It came up with the number 707-123. This means AA's number is 23. But what became of 22? If you go down the Boeing list you will find the number 720-022. This identifies the 11 plus seven aircraft ordered by United Air Lines. That means UAL's number is 22. How come UAL has a lower customer number than AA despite the fact it placed its order much later? Wouldn't you guess that Boeing originally expected UAL to come into the fold from the start, and had allocated 707 positions to it? Instead, UAL ordered DC-8s, and it's a good thing for the Douglas Company that Boeing didn't accomplish the expected sale. UAL's order for 30, then 10 more for a total of 40, put the DC-8 in business.

Missed Prospects

There are a couple of other numbers missing in the Boeing list. Continental is No. 24, its planes being identified as 707-124s. The next number is Braniff's 707-227. Missing are 25 and 26. If you are in the mood for a curbstone guess as to the carriers Boeing might have regarded as prime prospects and assigned these numbers, you could consider Eastern Air Lines and KLM. Who knows, Boeing may get 'em yet, possibly with versions of the 720.

Boeing's numbering system to identify the model, the configuration and the customer skidded slightly when the Seattle manufacturer chose to call a lightweight version the Model 720 instead of another number in the 707 series. UAL was the first to order this model and, as related previously, its airplanes are called 720-022s. Irish Air Lines ordered three and these are 720-048s. But 25 identical aircraft ordered by American Airlines will be called 707-023s. AA felt it would dilute its advertising and sales investment on the 707s it is now flying, if it added a second model number. So the 720 is now the 720-000 or the 707-000, take your pick.

New Body Style

The Model 720/707, for which the first delivery is scheduled to UAL in April, 1960, incorporates the basic 707 wing span, 130 ft., 10 in., but it represents the fourth set of body dimensions and it has a new powerplant. The body is 2 ft., 4 in. longer than the so-called short body 707 and 8 ft., 4 in. shorter than the long body in the 100 series. Engines are to be P&W's newly developed JT3C-7, a dry version of the basic J57.

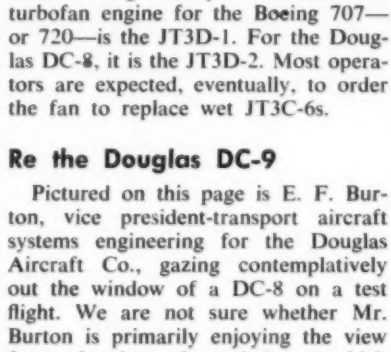
While we are on the subject of numbers, we might tell you that the P&W turbofan engine for the Boeing 707—or 720—is the JT3D-1. For the Douglas DC-8, it is the JT3D-2. Most operators are expected, eventually, to order the fan to replace wet JT3C-6s.

Re the Douglas DC-9

Pictured on this page is E. F. Burton, vice president-transport aircraft systems engineering for the Douglas Aircraft Co., gazing contemplatively out the window of a DC-8 on a test flight. We are not sure whether Mr. Burton is primarily enjoying the view from the large-size windows, which Douglas claims have it all over the double-window styling adopted by Boeing and Convair for their jets, or whether he is dreaming up new ideas to incorporate in the DC-9.

Douglas is pretty close to a final decision on the DC-9 incorporating four turbofan engines of about 8,000 pounds thrust each. As a matter of fact, you might say the decision already has been made because Douglas has a definite budget for DC-9 engineering that extends through the remainder of this year. And it has selected a P&W turbofan for the powerplant.

But you can be sure of one thing.



Engineer Burton samples the DC-8 view.

Douglas won't proceed to build the DC-9 in speculation as it did the DC-8. It will have a commitment from an airline before it issues any shop orders.

Big Stakes in Route Case

Cities, as a rule, want all the airline service they can get, but they seldom take sides between carriers. But in the southern transcontinental route case, the city of Oakland not only advised CAB Examiner Edward T. Stodola that it wants more airline service, but also that it wants it provided by Eastern Air Lines. In the background is the old Oakland-San Francisco feud. Oakland came out for EAL when Capt. Rickenbacker's line promised that some of the top trips would be scheduled into the Oakland airport, not just the San Francisco airport, if it gets the route.

It has been estimated that the costs for the airlines participating in the southern transcontinental case will aggregate in the area of $2 million. It will take a lot of tickets to add up to $2 million. But the stakes are high. Someone at the Los Angeles hearing estimated that the award of the southern transcontinental route meant a revenue potential of $100 million a year to the airline winning it. In the light of today's revenues this may seem to be an optimistic figure. But perhaps the jets will generate it.

Ex-airline Pilot Is Missile Head

Brig. Gen. Osmond Ritland, who took over as commander of the Air Force Ballistic Missile Division at Inglewood when Lt. Gen. Bernard A. Schriever moved up to head ARDC, used to be an airline pilot. He flew between Los Angeles and Oakland for United Air Lines in the late 1930s. He returned to active duty in the Army Air Corps in 1939. His transport vehicle now is a Convair C-131.

Helicopters Are Popular

Hughes Aircraft Co. is the latest manufacturer on the West Coast to decide to operate helicopter service between plant facilities to save executive time. Others are North American Aviation and the Northrop Corp. Hughes, using Bell 47Js, has set up a route to serve the company's plants at Malibu, Culver City, El Segundo, Costa Mesa and Fullerton.

Shapely Electras

If you hear Stan Shatto refer to Western Air Lines' maiden form Electras, he means those with the tilted nacelles.

A Small Airport Can Have Big Plans

A good example of a small hub airport that was caught in the pinch of burgeoning air travel—and has done something about it—is Greater Peoria Airport, Peoria, Ill.

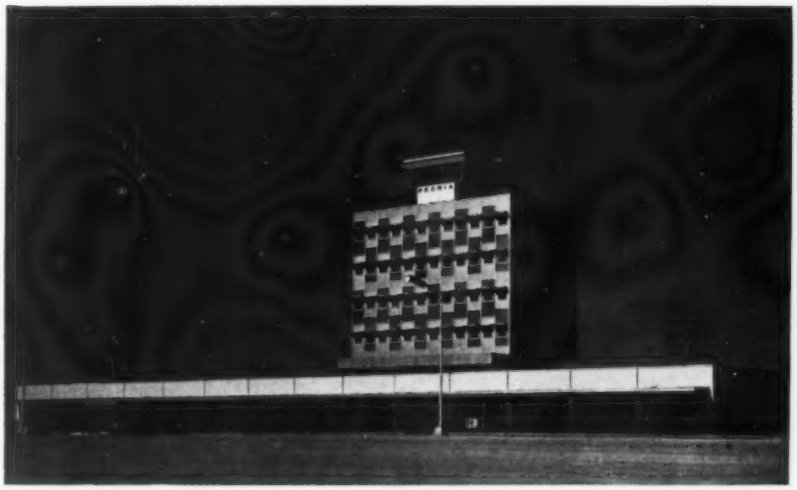
To meet current traffic increases and to prepare for the future, Peoria has put $1.5 million into a new terminal building and $3 million into runway expansion. The six-story terminal opened for business eight weeks ago.

Traffic growth and predictions for the future attest to the fact that the new facilities were badly needed. In the past 10 years, traffic has jumped more than 300%, from 23,976 passengers in 1949 to 94,915 in 1957. The 1958 figures were slightly lower because of airline strikes—90,873 passengers, 289,-129 lbs. of air mail, 448,802 lbs. of air express and 724,863 lbs. of freight.

A new record is predicted for this year, and by 1970 enplaning and deplaning passengers are expected to top 180,000.

At present, the airport is not self-supporting. About 40% of income is from operating revenues, about 60% from taxes. But airport manager Dewitt Collins and others believe that the field eventually can operate on a break-even basis. Financing of the improvements at Peoria has been through state and federal appropriations, with no local bond elections.

The new six-story terminal includes a wide, one-level passenger service area, three floors of weather and FAA communications facilities, and two floors of administrative offices. Concession space includes a 500-sq. ft. snack shop, 300-sq. ft. bar, 125-person dining room, gift shop, book stand, car rental, barber shop, ticket counter space for the fixed base operator, and eight built-in advertising display cases.



New six-story terminal recently opened for business at Peoria cost $1.5 million, is designed for expansion to meet future traffic demands.

Car rental tops concessions

To date, the car rental concession has been the most profitable, but it is expected that, given time to develop, the restaurant-snack shop-bar will top the list.

Design of the terminal was complicated by the fact that heavy peak hour loads pass through the building twice a day.

The morning peak is from 7 a.m., with flights going to Chicago, to 9 a.m. with a flight to Minneapolis and intermediates. Evening peak begins with a 5:19 p.m. flight arriving from Milwaukee and Moline and extends to 9 p.m. Traffic consists primarily of businessmen moving in and out of town, many of them making connections in Chicago.

To ease the flow, the building has been constructed for entrance along its entire width. Passengers can move from the auto ramps through the terminal without creating a bottleneck at the ticket counters or waiting areas. A continuous conveyor carries luggage from a point near the loading gates to within a few feet of the center front door leading to the auto driveway.

Anticipating future growth needs, architects Foley, Hackler, Thompson and Lee, of Peoria, allowed for terminal expansion in three directions: vertically; horizontally towards the loading ramp, and horizontally on the end of the building to the west. A full second floor can be added since the roof area of the first floor was built to hold floor loads over its entire area. New construction towards the loading ramp is possible by removal of glass window-walls. Additions at the end of the building are facilitated by removal and salvage of a full width metal wall.

Emphasis was also placed on maintenance. All floors except the dining room are ceramic tiled. All inside walls on the first floor are finished with colored glazed brick. The larger part of the outside walls is built of glass with aluminum framing.

Windows on the upper five floors are center-hinged at top and bottom, permitting full 360-degree rotation. This eliminates the need of outside window washing or maintenance.

Peoria is served by American, TWA and Ozark, with a total of 23 flights per day. Aircraft used include Convairs, Martin 404s, and DC3s. Next month, Ozark is planning to start F-27 service.

To handle the new commercial airplanes and the F84s flown by the Air National Guard unit at Peoria, the main runway has been lengthened from 5,000 ft. to slightly more than 7,000 ft. An overrun of 8,000 ft. is provided for future expansion to 10,000 ft.

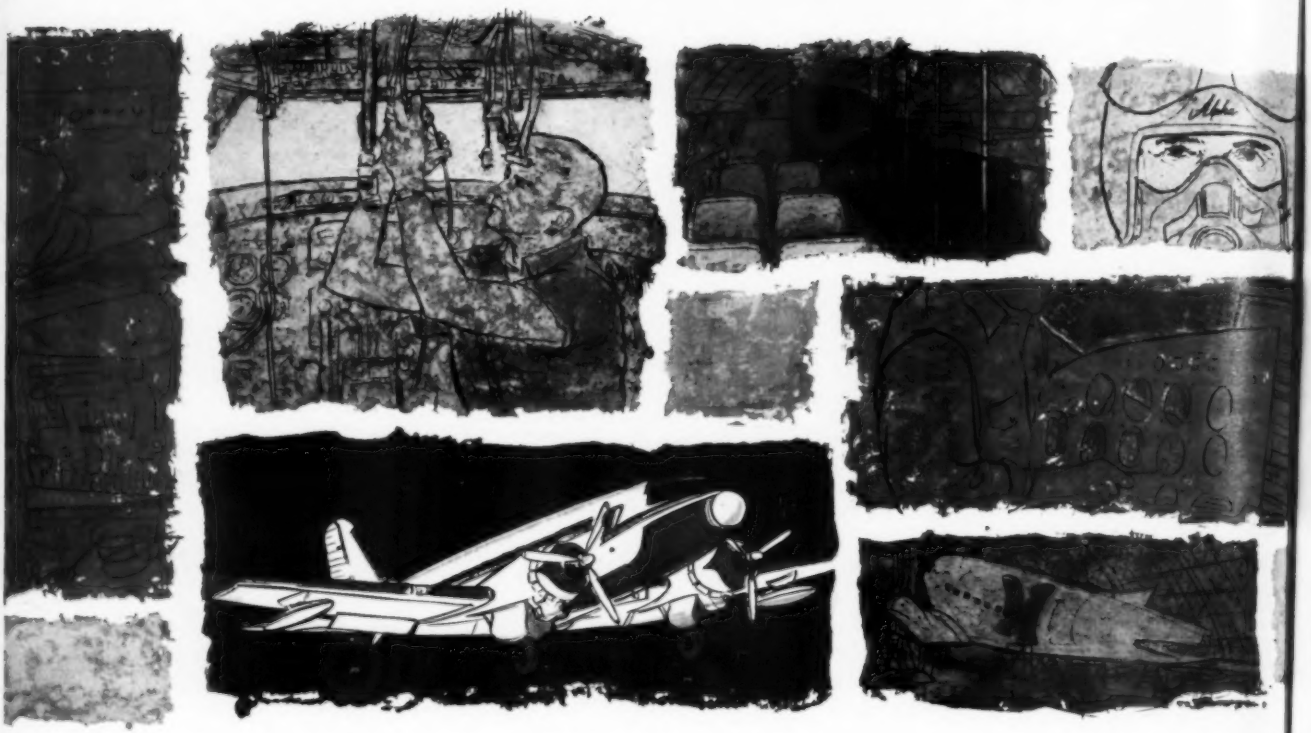
Only airlines pay fees

The landing fee scale is set at $50 for the first three landings plus $25 for each additional landing and one dollar for each pound above 28,000 lbs. These fees are applied only to scheduled air carriers and not to local or transient aircraft, whether private or commercial.

One fixed base operator, Byerly Aviation, is located on the field. Byerly offers flight instruction, charter and maintenance and handles all the gasoline sales to transients and the National Guard.

Byerly is also a licensed Piper distributor. About 40 T-hangars are provided for aircraft storage, and Byerly leases hangar space to LeTourneau-Westinghouse for corporate aircraft.

AIRCRAFT MODIFICATION



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SALES TALK

By ERIC BRAMLEY

Here's a Disposable Cup That Doesn't Fall Apart

Lake Central Airlines thinks it's found the answer to the problem of serving coffee in a disposable cup.

Don Getchell, vice president-traffic and sales, says the new Thermokup now being used won't (1) fall apart at the seams, (2) taint the coffee, (3) burn your fingers, (4) semi-collapse when lifted. It's made of a paperlike plastic.

Furthermore, the Thermokups, made by Mid-West-Pak, Belvidere, Ill., are cheaper than ordinary paper cups formerly used by LCA—$13.58 per thousand against $13.80 per thousand. Passenger reaction has been very favorable, the airline reports.

NWA Solves a Problem: How to Poach an Egg

Ever been served a poached egg on an airline that was about as soft as a golf ball? No more, says Northwest Airlines.

NWA food service director Harold Lindbergh noted that by the time eggs reached the breakfast tray after half-cooking, refrigerating, transporting, reheating and serving, they were dismal. After much experimenting, he and his staff came up with the "shock treatment."

Here's how it works: Just as the water comes to a simmer, in goes an egg. As soon as it forms it is dunked in ice water. The shock "freezes" it. Slices of ham or Canadian bacon are placed on English muffins and topped with the shocked eggs, which are brushed with melted butter. Ovens that go aboard the plane are preheated for 45 minutes in the kitchen. After they've preheated 15 minutes, the eggs and muffins are put in. Aboard the plane, the oven is plugged in and heating continues until breakfast is served. Result, says NWA, is a—not too hard, not too soft—perfectly poached egg.

Tickets by teletype are being provided by Delta Air Lines to 25 federal agencies in Atlanta. It's the first teleticketing system to be used by the government. Instead of the usual typed message printed on a roll of yellow paper, the teleticket machine delivers a complete airline ticket from tapes cut in Delta's office. General Services Administration says the system will save money for the government. Formerly, messengers were sent to the airline office to pick up tickets.

Clever interline sales promotion, patterned after the trading stamp plans, is underway at Northwest Airlines. Employes of other airlines get stamp books from NWA. For each booking they make via NWA from Seattle/Tacoma to Honolulu, Anchorage or any Orient point, they receive from 300 to 4,000 points (actual number depends on destination, one-way or roundtrip, first-class or coach). The company sends them stamps to cover the points. For 8,000 points, the award is a positive-space coach roundtrip Seattle-Anchorage. Highest award, 75,000 points, is first-class Seattle-Manila roundtrip.

A novel "wake-up and information service" is operated by Japan Air Lines in San Francisco. If you're planning to meet someone arriving on JAL, the airline will phone and awaken you (arrivals are in early morning), tell you whether the flight's on time, delayed, etc. Idea was conceived by members of the San Francisco staff.

Bang-up advertising campaign to sell the military on use of commercial air is being conducted in military journals by Air Transport Association. Recent ad shows a soldier at ticket counter, with caption: "This man will fly 2,580 miles in 6½ hours and save the government $15.01!" New York-San Francisco rail fare, Pullman and meals are quoted at $164.61, air fare $149.60. Time saved is 75 hrs. 45 mins. The ad states: "Millions of military dollars are wasted yearly on per diem allowances, pay dollars, overnight accommodations and meals enroute when personnel are moved by slow surface travel." ATA agency is Ketchum, MacLeod & Grove.

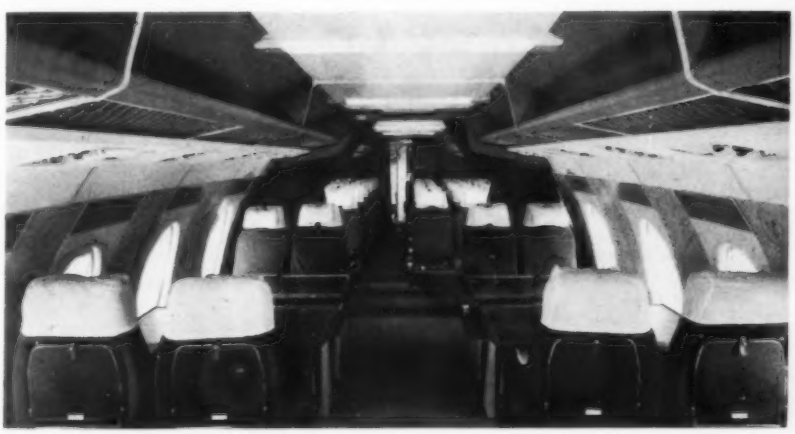
New passenger service item: Capital Airlines is putting a stock market newsletter aboard four late afternoon VIP flights out of New York. The letter, prepared by Bache & Co., investment house, contains market summary for the day, and closing prices of a few key stocks.

Savings of $10,000 a year will be realized by TWA through introduction of a new streamlined baggage tag. It's smaller than the present tag, costs less to produce and ship, takes less storage space. TWA says another feature is that the tag attaches closely to the luggage handle.

Improved meals for economy passengers have been introduced by Pan American. Main meal now includes fruit-type of salad; a plate containing roast beef, chicken and ham, with garnishes and cheese; juice; hot or cold beverage; rolls and butter.

Advertising debut in a national magazine was made by Mohawk Airlines with a schedule of six ads in the *New Yorker*. Commuter aspect of Mohawk's service is featured. Farquhar & Co., Utica, is the agency.

Travel to Mexico is easier following elimination of inbound baggage inspection at all international airports. Under the new set-up, visitors fill out a declaration listing the contents of their baggage, with the exception of personal belongings. Mexicana de Aviacion says this reduces time spent clearing the airport by as much as 20 minutes.



Eagle Airways Faces Viscount Seats Aft

Rear-facing seats are used in Viscounts by Eagle Airways (Bermuda) Ltd. on routes from Bermuda to New York and Baltimore. Photo was taken from rear of cabin. In foreground are eight first-class seats, each pair separated by two double tables. Next section has 38 tourist seats in 3-2 arrangement. Behind pilots' compartment is a six-place tourist section. Eagle says reaction to rear-facing seats has been excellent.

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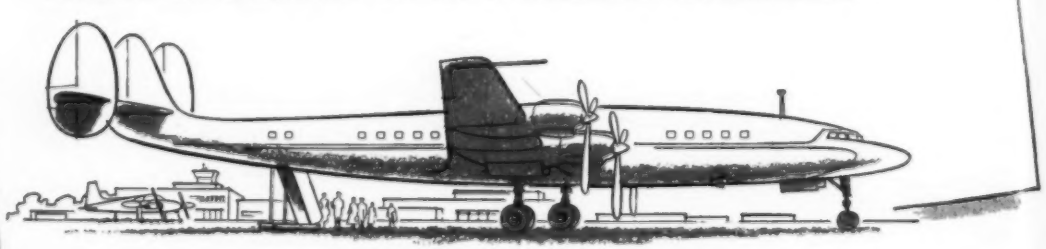

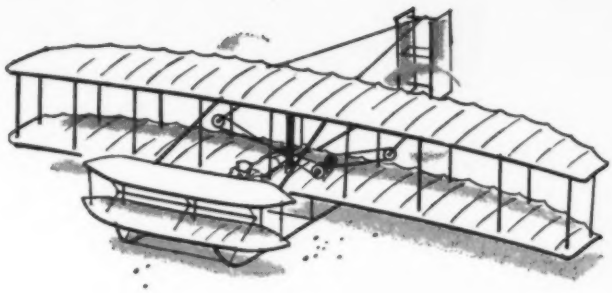

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PAR AVION

By ANTHONY VANDYK

• **Tours that please everyone**—Thousands of Europeans who cannot afford normal IATA fares are traveling on IATA airline aircraft chartered for inclusive tours. The inclusive tour business is providing IATA carriers with a valuable source of additional revenue as well as reducing the cost of air travel to the public. Take Switzerland as an example. The IATA tourist fare from Geneva to the Mediterranean vacation island of Palma is $95.80. For this sum all the passenger gets is transport from Geneva airport to Palma airport and back. Yet for $10 *less*, by taking an inclusive tour the passenger not only gets all transportation from Geneva to Palma and back (including ground transfers) but also 14 days in a hotel on the beach with all meals included. The price of the inclusive tour really is inclusive—it even includes taxes and tips. And air transport is via Swissair Convair 440.

How is all this possible at less than the normal IATA fare? The answer, in a nutshell, is that the operation is a charter. Over 30 Swiss travel agents got together and formed a company called Airtour Suisse. This organization charters aircraft for its inclusive tours. The charters are arranged at times when the aircraft would normally not be in scheduled operation and therefore the carrier can give Airtour Suisse a very good price. In the case of the Palma flights, the chartered Swissair Convair leaves at 11:20 p.m. and returns from Palma at 3.20 a.m. Another reason for the low cost of the tours is that the component travel agencies of Airtour Suisse with their some 100 branch offices in Switzerland are able to reduce the advertising and promotion costs by doing everything jointly. The result pleases everyone. The travel agents get more business, the carriers get more revenue and the traveling public gets a cheaper vacation. This year Swissair has already contracted with Airtour Suisse for 100 charters (mostly to Palma but also to Nice, Rimini and Scandinavia).

• **A big charter business**—One of the world's largest charterers of aircraft is the Intergovernmental Committee for European Migration, which took over many of the functions of the defunct International Refugee Organization. Since its establishment on February 1, 1952, ICEM has arranged for the air transportation of some 130,000 migrants by air. During the period of the Hungarian uprising it handled the charter of 1057 aircraft. These days ICEM's chartering activity is somewhat less but all the same it involves about a dozen long-haul flights each month carrying a total of some 800 migrants.

The organization has strict standards and requires the use of four-engine aircraft on all long-haul overwater flights. Cabin service of tourist class standard is required. At the moment most of the ICEM charters are being carried out by U.S. nonscheduled airlines (Capitol, Transocean, Seaboard & Western, American International, and Overseas National being particularly active) but almost every one of the world's major airlines has participated at one time or another. Very occasionally delivery flights are used (when we visited the ICEM offices in June, 20 migrants were being taken from Germany to Australia on a TAA Viscount delivery flight) but most travel is on DC-4s or Constellations. Officials are not allowed to discuss how much the migrant charters cost. But CAB documents show that often there have been charters across the Atlantic where the rate paid has worked out to well under $100 per seat. For the record, the one-way IATA emigrant fare is $180 (London-New York).

• **Tough life for a small line**—Life is not easy for a small airline that has to live on fifth freedom traffic. Finnair's recent experience on its Finland - Denmark - Germany - Switzerland route provides a good example of how tough things can be. When the Finnish airline opened this route in the spring of 1958 it was given full traffic rights between all points except from Switzerland to Denmark. This was not too important since the main traffic on this route is to and from Germany. Partly because of the convenient timing of the schedules and partly because of the excellent service aboard the Finnair Convairs, the flights, after a slow start, were becoming popular with the traveling public when suddenly the airline was notified that it would lose its traffic rights between Switzerland and Germany on May 24, the date when Lufthansa started paralleling the Frankfurt-Geneva sector of the Finnish route.

In order to soften the blow, Finnair was granted traffic rights between Switzerland and Denmark, but this is token compensation for the loss of the rights to and from Germany. The taking away of Finnair's rights between Switzerland and Germany would have been more understandable if Lufthansa's flights had taken place at about the same time. In point of fact, Lufthansa flies from Frankfurt to Geneva four times a week at 11:05 a.m. and returns from Geneva at 7:15 p.m. while the daily Finnair flight leaves Frankfurt at 10:40 p.m. and northbound departs Geneva at 7:15 a.m.

• **Airline shops work for USAF**—Increasing use is being made by the U.S. Air Force of European airlines' overhaul and maintenance facilities. Sabena, for example, currently has contracts covering C-54 IRAN, periodic maintenance and drop-in maintenance. The Belgian airline's engine shop also overhauls the P & W R-2000s of these aircraft. Some of the USAF's C-47 periodic maintenance is carried out by THY, the Turkish airline, but the biggest volume of C-47 work at present goes to SIAI-Marchetti. This Italian company carries out IRAN, periodic and drop-in maintenance on the twin-engine Douglas transports. Engine overhaul contractor for the C-47's R-1830's is BOAC. KLM at the moment is not performing any USAF transport work but continues to overhaul in its engine shops Curtiss-Wright J65 turbojets from F-84 and RF-84 fighters.

ABOUT PEOPLE

IN THE AIRLINES

Phase II of TWA's organization plan has been completed, and **E. O. "Oz" Cocke** emerges as the top official under the president. The realignment started months ago following a survey by Cresap, McCormick and Paget, management consultants, and recommendations of various company "task forces." As the new senior v.p. and system general manager, 30-year veteran Cocke is responsible to the president for all line operations and for conducting the day-to-day business of the company. Formerly he was senior v.p.-sales.

COCKE

MARECHAL

Cocke's two principal aides: **Floyd D. Hall,** who switches from v.p.-flight operations (*AIRLIFT*, June) to v.p. and general transportation manager, heading the division that is responsible for the production of transportation; **Louis P. Marechal,** former v.p.-sales of the Atlantic Region, who becomes v.p. and general sales manager, responsible for all sales activities.

Gustav Wedell, president of East Asiatic Co. Inc., was named 1959 board chairman of Scandinavian Airlines System Inc., the North American affiliate of SAS. Wedell, who represents Danish interests, succeeds **Edwin Chinlund,** Swedish representative.

Warren E. Kraemer was elected first v.p. and deputy to **Tore Nilert,** president of SAS Inc. Kraemer will continue as v.p.-traffic and sales, a position he has held since 1954.

KRAEMER

SPATER

George A. Spater, aviation attorney for 25 years, was elected executive v.p. of American Airlines and will serve as general counsel, heading a small internal legal department. In the past AA has employed an outside law firm as general counsel. The company intends to continue to use New York and Washington law firms now doing work for it. Spater was with Chadbourne, Parke, Whiteside and Wolff, which represented TWA.

C. A. Myhre, former president of Frontier Airlines, was appointed v.p. finance of Pacific Air Lines. Myhre joined FAL in 1945, became president in 1953, and resigned last January.

MYHRE

VAN de BUNT

Harold E. Gray, executive v.p. of Pan American World Airways' Atlantic Division, and **Wilbur L. Morrison,** executive v.p.-Latin American Division, were elected directors of PAA.

J. Dan Brock, who has been v.p.-traffic of TACA International Airlines, stationed in New Orleans, is Frontier Airlines' new v.p.-traffic and sales, succeeding **John Lindsay,** resigned.

Glen B. Eastburn, assistant to the president of New York Airways since 1952, was elected a v.p. He will handle route development, service planning and community relations.

Wouter Van de Bunt was named manager of long-range planning for Capital Airlines. He had been with KLM's central planning department for seven years.

Carl S. Roethgen, former assistant manager-cargo sales of Eastern Air Lines, is now New York regional cargo sales manager for Irish Air Lines.

George L. Monteiro, former executive v.p. and general manager of Guest Aerovias Mexico, is now manager of foreign affairs for the company, with offices in Miami. He also represents the Winston Guest interests in APA, Aerovias Panama.

Don Glynn was appointed to the new post of general traffic manager of Alaska Airlines, based in Anchorage. He was former manager of reservations procedures, manuals and training for Allegheny Airlines. **Edward Sherman,** formerly with Simpson Timber Co., Seattle, was named director of personnel and industrial relations.

Robert T. Phinney, 20-year veteran with Braniff Airways, has been appointed director of passenger service. **Dwight Chiles,** southern region sales manager, takes over Phinney's former post of agency and interline sales manager.

William T. Austin resigned as United Air Lines' assistant district sales manager in Chicago to become eastern regional sales manager of Continental Air Lines, based in Chicago.

Richard H. Brooks was named to the new post of director of facilities for American Airlines.

E. R. "Ned" Bossange Jr., formerly engineering superintendent of Pan American's Pacific-Alaska Division, has been transferred to the Atlantic Division as assistant maintenance manager.

Keith Halliday, former assistant director of mail and express for TWA, has joined Seaboard & Western Airlines as director of mail services, a new post.

AMONG SUPPLIERS

John A. Collings, 31-year TWA veteran who retired July 1, has joined United Aircraft Corp., as assistant to president **William P. Gwinn.** Collings had been senior consultant and a director of TWA since 1957. For many years he was v.p.-operations and executive v.p. and was chief executive officer during periods when TWA did not have a president.

Paul Brabazon, former president of Tele-Trip Co., aviation insurance firm, is now eastern representative of Erwin-Newman Co., Houston, which designs and erects a suspended cantilever hangar. He will be based in Washington.

Wendell W. Suydam was named manager of the overhaul and repair department of Hamilton Standard Division of United Aircraft Corp.

OTHERS IN AVIATION

Harold R. Harris, president of Aviation Financial Services, is the new chairman of the board of governors and executive committee of Flight Safety Foundation.

For *Confirmed* Reservations in this area

HEADQUARTERS:
MEACHAM FIELD, FORT WORTH, TEXAS

A FEDERALLY CERTIFICATED SCHEDULED AIRLINE EST. 22,000,000 MILES AGO

Circle No. 39 on Reader Service Card.

Two Locals Get New Routes in Northwest

West Coast Airlines and Pacific Air Lines were awarded new routes in CAB's Pacific Northwest Local Service case, the former receiving entry to San Francisco, the latter to Portland.

WCA's present segment 1 was extended beyond Klamath Falls, Ore., to Boise via intermediates for three years, and beyond Klamath Falls to San Francisco/Oakland via Sacramento for five years. The company was also given more flexible operating authority Portland-Seattle and from Seattle/Portland to Spokane/Coeur d'Alene.

Pacific's present segments 2 and 3 were deleted and a new segment 2 added from San Francisco/Oakland via intermediates to Medford and Portland.

CAB Drops Attempt to Restrict Military Bids

CAB dropped a proposed policy statement that would have set up a new system to prevent destructive competitive bidding by civil carriers for overseas military passenger traffic (*AIRLIFT*, June).

The Board said it has "exhausted all avenues" available to correct "what is generally accepted as an increasingly unhealthy rate situation."

Military Air Transport Service opposed CAB's plan to eliminate competitive bidding for MATS business and substitute a system of minimum rates. CAB, noting that it could not proceed without the cooperation of the Defense Department, said it would continue its current method of issuing tariff exemptions to carriers who are successful bidders for MATS contracts.

Examiner Finds Capital's Toledo Service Inadequate

Capital Airlines' service to Toledo is inadequate and CAB should require it to add daily coach flights, CAB Examiner Paul N. Pfeiffer recommended. If adopted, the order will be the first one dealing with adequacy of service.

The airline's failure to render either first-class or coach through service Toledo-Chicago, Toledo-Philadelphia and Toledo-New York constitutes inadequate service, Pfeiffer said. Capital should be required to fly two round-trip through coach flights in these markets for a trial period of one year. He added that even if the service fails to prove economical after a year, Capital should still be required to operate it in return for richer markets it received in the New York-Chicago and Detroit-Washington cases.

CAB Amends Method of Selecting Travel Agents

The scheduled airlines' method of selecting and retaining travel agents has been approved by CAB, but with amendments.

Air Traffic Conference members appoint only agents approved by ATC, and decision on an agent's eligibility rests with the conference's agency committee. CAB said the method should be modified by (1) deleting a requirement that an agent be sponsored by an airline, (2) deleting the requirement that "need" by ATC members for an agency in the area be considered by the agency committee, (3) requiring the committee to record and give notice of its reasons for rejecting an agent, (4) requiring the committee to give agents opportunity for rebuttal.

CAB also deleted the requirement that the committee must review an agent's authorization when asked to do so by any member, expanded arbitration procedures under which an agent may appeal, and required annual reports on agent applications and complaints.

ROUNDUP OF ACTIONS

APPLICATIONS

Air-India International applied for a foreign air carrier permit to operate between (1) points in India via Asia, Africa, Europe, United Kingdom, Ireland and Canada to New York and beyond to points included in section 2 of its application, and (2) between India via Asia, Philippines, Japan and Canada to San Francisco or Los Angeles and beyond to points in section 1.

Mountain Airlines, a division of Skymaster International Inc., California, asked for a temporary or permanent certificate to operate between points in California, Nevada and Arizona. Company is an air taxi operator, flying Reno-Burbank via intermediates, with de Havilland Doves.

Frontier Airlines requested CAB to guarantee $2,250,000 in loans to be applied to purchase of five Convair 340s from United Air Lines. Loans are for seven years at 5½% and will be participated in by Central Bank & Trust, Denver, $250,000; Irving Trust Co., New York, $1,000,000; Bank of America National Trust & Savings Assn., San Francisco, $1,000,000.

ACTIONS

American Express Co. should be granted authority to operate as an air freight forwarder, with certain restrictions, for a five-year experimental period, CAB's Bureau of Air Operations recommended.

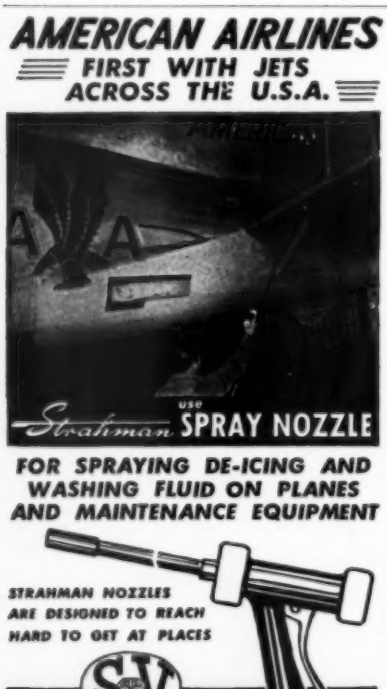
CAB turned down requests by Pan American and Eastern that it suspend and investigate New York-San Juan tourist roundtrip discounts proposed by Trans Caribbean Airways. Tariff calls for 5% discount Mondays through Thursdays, and 10% for the same days if the trip is completed within 16 days.

MAIL RATES

Mohawk Airlines has been given a final mail rate of $2,074,706 annually, beginning May 1, 1958. Of the amount, $1,604,736 is break-even need and $469,970 is return on investment. Issuance of the order was delayed by intervention of Delaware, Lackawanna & Western Railroad, which opposed the payment.

Ozark Air Lines' temporary mail rate was fixed at $3,199,340 for the period Dec. 13, 1957 through Feb. 28, 1959. Future temporary rate for the year beginning Mar. 1, 1959 is $3,522,794.

Pan American World Airways' system-wide mail rates have been set at a subsidy-free level, from Jan. 1, 1959. CAB left open the question of PAA's eligibility for subsidy for the period Oct. 1, 1956 through Dec. 31, 1958.



Circle No. 32 on Reader Service Card.

KLM's Shop Is Ready for Turbines

Amsterdam—Europe's most modern engine overhaul shop operated here by KLM at Schiphol Airport is ready for turbines *before* they arrive.

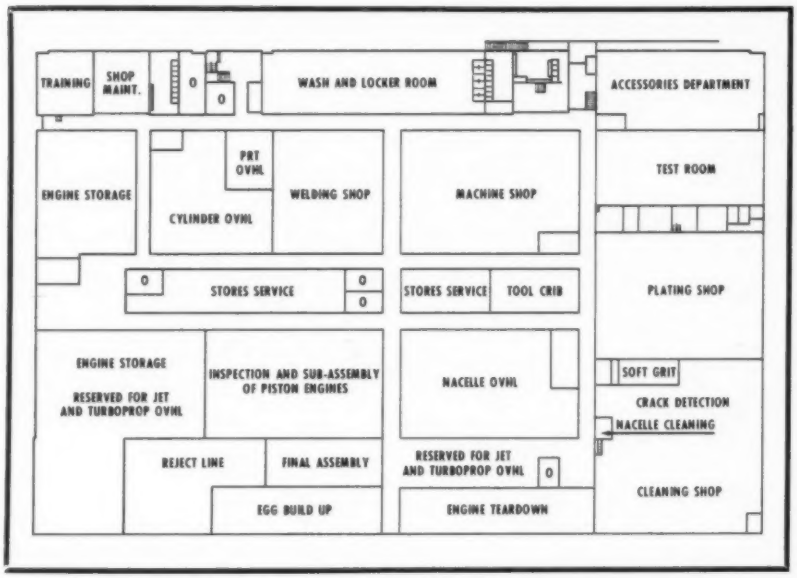
KLM planned it that way, completed it last fall a full year ahead of its first turboprops and jets. For one, it wanted to avoid the simultaneous "teething" problems inevitable with a new shop and overhauling new engines. Then, too, its old shop just wasn't big enough to handle piston and jet engines during the transaction.

Within a few months KLM will receive the first of 12 Lockheed Electras and will start overhauling the Allison 501 turboprop engines. Several months later it gets its first Douglas DC-8s and will add Pratt & Whitney JT4s to its overhaul line.

At present the shop is handling about 11 piston engines per week, mostly Wright Turbo Compounds and P&W R2800s. When the turbines are added, it will turn out about 15 with a 25% expansion potential if needed.

Designed under the supervision of engine overhaul chief M. Franse, the KLM facility measures 450 by 295 feet. Free height in the shop is 90.5 ft. but additional clearance is available in assembly/disassembly areas for vertical handling of jets.

The shop is modern, particularly in its emphasis on dust free atmosphere. Windows cannot be opened and all doors are double. There's a complete air change three times per hour. The air-conditioning system maintains a slightly higher air pressure inside the building than outside.



Layout of KLM shop shows arrangement of key departments and planned turbine area.

Master planner of KLM shop is overhaul chief M. Franse.

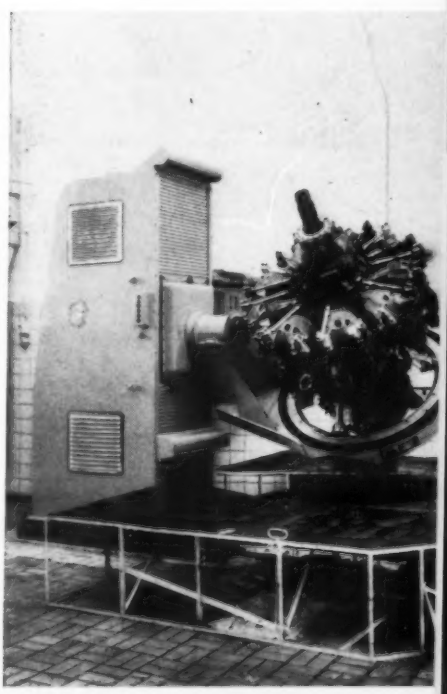
In the accessory shop, air is changed 20 times an hour and humidity is maintained at a controlled minimum.

A special Unicum stand, built by Unicom's Bedrijven, Weert, Holland, is used for the assembly and disassembly. A fixed stand, the Unicum equipment permits the engine to be rotated on its own axis, raised or lowered, or rotated from horizontal to vertical.

Parts cleaning is quite conventional using conveyor feed to three chemical baths, Turbo-transpo for decarbonizing; Turco 4228 for deleading and Turco 4008 for descaling.

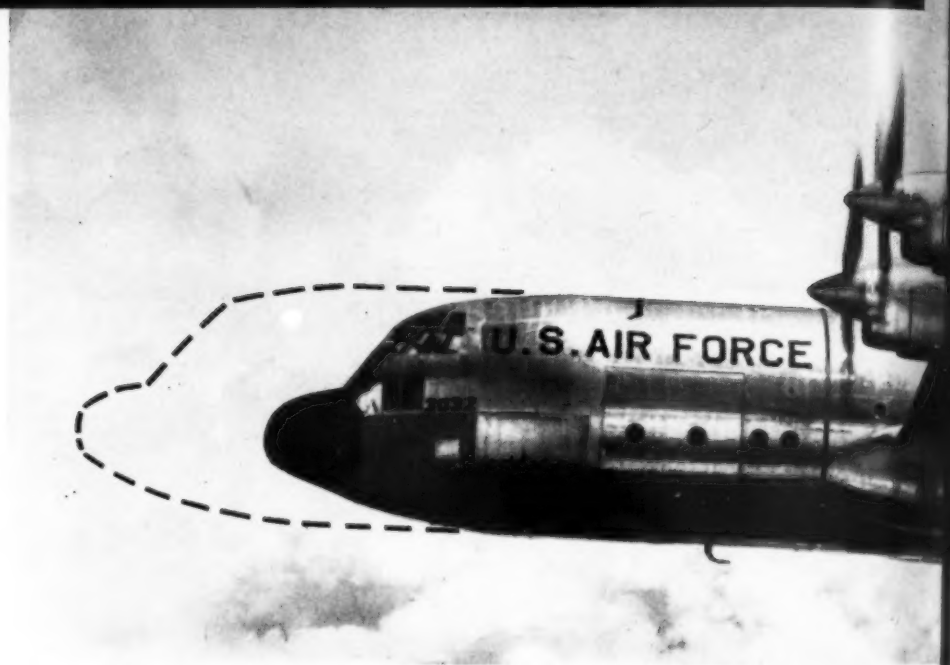
The basic piston overhaul shop has five departments: nacelle overhaul, rear and blower case, power section and nose section overhaul. Immediately serving the shop is a stores unit which maintains a two-week parts supply.

When KLM adds turbine overhaul, assembly and disassembly will be handled parallel to the present piston line. Other shop operations will be assigned to the respective piston areas now handling them.



Versatile Unicum stand simplifies assembly and disassembly.

New Lockheed Super Hercules
Big brother of U.S. Tactical Airlift champ

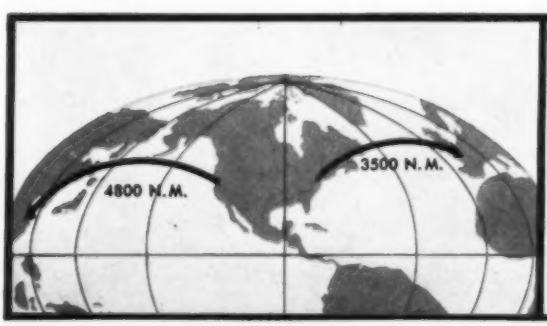


An ocean-spanning logistic support transport, the GL-207 Super Hercules is a "stretch" version of the C-130 Hercules—famous for its headline-making feats in over two years of service with USAF's Tactical Air Forces.

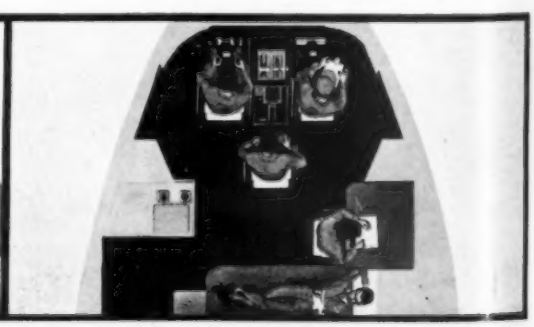
The GL-207 Super Hercules has a fuselage 23 feet longer than its brawny brother's. Its wing span is 12 feet greater... its propeller-diameter has been expanded by 2½ feet... internal fuel capacity has been increased to 10,236 gallons for greater range (pylon tanks add another 1800 gallons).

Powered by four new GM-Allison T-61 Prop-Jet engines, the Super Hercules provides nonstop trans-Atlantic and trans-Pacific transport for personnel, vehicles, palletized/containerized freight, missiles, and general cargo. Maximum payload: 78,000 pounds.

The GL-207 Super Hercules will come off production lines at Lockheed's Georgia Division. Like all Lockheed aircraft, the Super Hercules is designed for long life, easy maintenance, and low cost of operation. Result: maximum airlift, for minimum dollars.

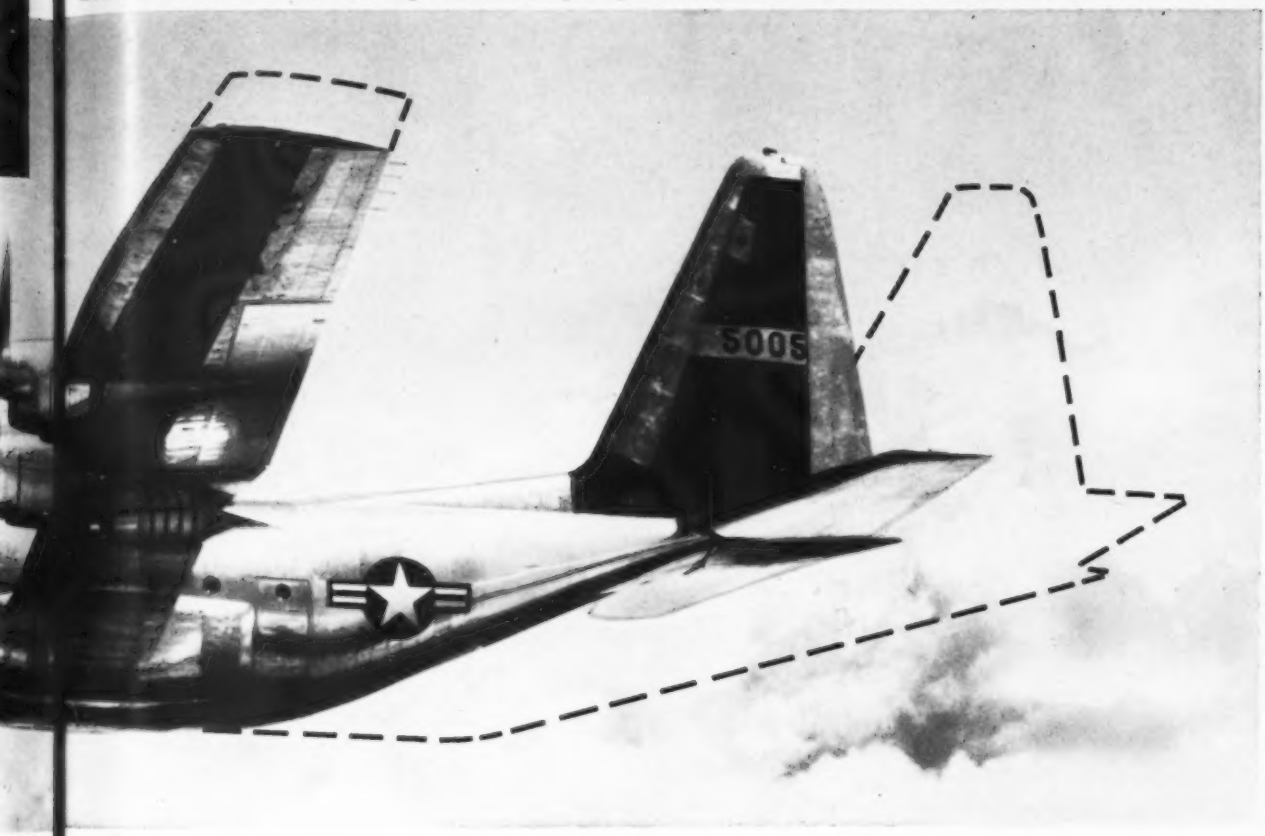


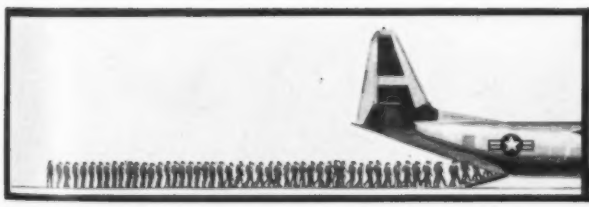
Transporting 50,000-pound MATS cargoes nonstop across the Atlantic—or, with pylon tanks, spanning the Pacific nonstop carrying 16-ton loads 4,800 nautical miles—is Super Hercules' mission.



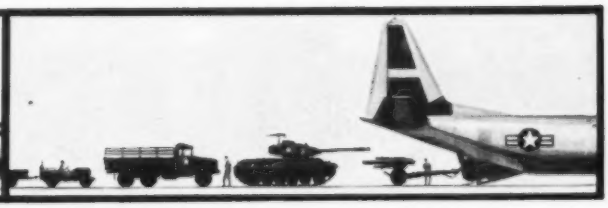
Crew efficiency on long flights is assured by flight station design approved by experienced transport pilots. Super Hercules' crew compartment includes relief crew sleeping space, galley facilities for hot meals in flight.

Dotted line shows size of GL-207 Super Hercules, superimposed over now-in-service C-130 Hercules.

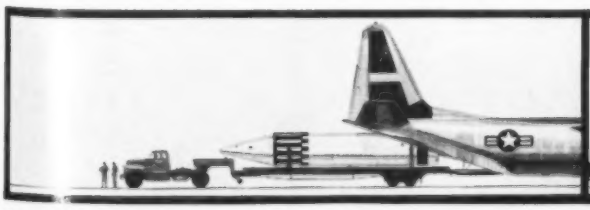




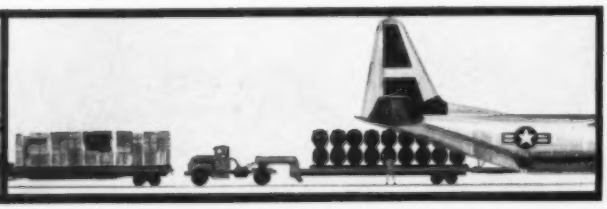
152 combat-ready troops, or 116 paratroopers can be transported in the GL-207. With airline type seats, the Super Hercules can carry 105 persons comfortably.



Combat vehicles can be driven up the hydraulically controlled ramp-door of the end-loading GL-207 Super Hercules—a vital time-saver in emergency situations.



Big ballistic missiles—assembled, with boosters, on trailers or dollies—fit easily into the huge pressurized cargo compartment of the GL-207 Super Hercules.

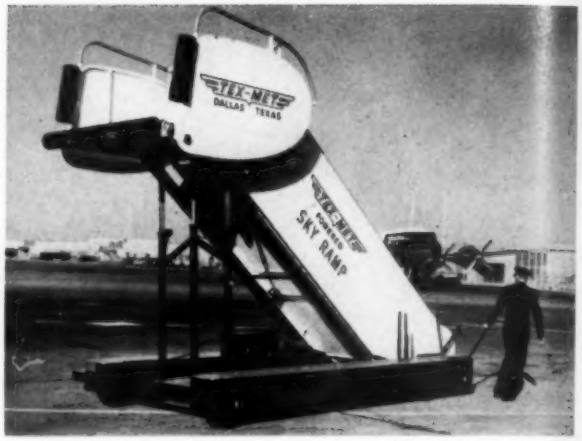


Assorted cargo—runway matting, jet engine containers, fuel and oil drums, etc.—can be speedily loaded onto Super Hercules' truck-high cargo floor.

LOCKHEED

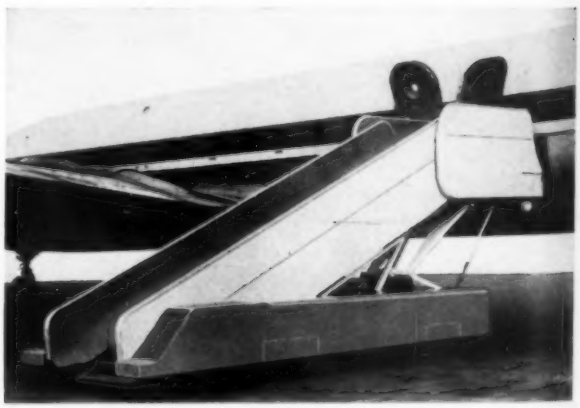
JET TRANSPORTS • JET FIGHTERS • JET TRAINERS • COMMERCIAL & MILITARY PROP-JET TRANSPORTS • ROCKETRY
BALLISTIC MISSILE RESEARCH & DEVELOPMENT • WEAPON SYSTEM MANAGEMENT • ANTI-SUBMARINE PATROL AIRCRAFT
NUCLEAR-POWERED FLIGHT • ADVANCED ELECTRONICS • AIRBORNE EARLY-WARNING AIRCRAFT • AIRPORT MANAGEMENT
NUCLEAR REACTOR DESIGN & DEVELOPMENT • GROUND SUPPORT EQUIPMENT • WORLD-WIDE AIRCRAFT MAINTENANCE

Passenger loading stands have been selected as the feature equipment item for this issue of AIRLIFT. *As opposed to specially-constructed stands which are designed for only one type of aircraft, these stands are production items for multi-aircraft use and are available at dealers throughout the U.S.*



Tex-Met Powered Sky Ramp, built by Texas Metal Products, Dallas, Texas. Powered by 6½ hp gasoline engine which moves it at 0-three mph. Fits all door openings from 80 in. to 100 in. above ground level. Units are in operation with most U.S. trunk lines and many foreign carriers.

Circle No. 100 on Reader Service Card.



Con Diesel Model 2103, built by Consolidated Diesel Electric Corp., Stamford, Conn. Though designed for United's DC-8s, unit is applicable to other aircraft. Adjusts vertically from 80 to 160 in. Stand is powered by 36 v. electric motor and can move up to 3½ mph. Contains a 12 v. lighting system.

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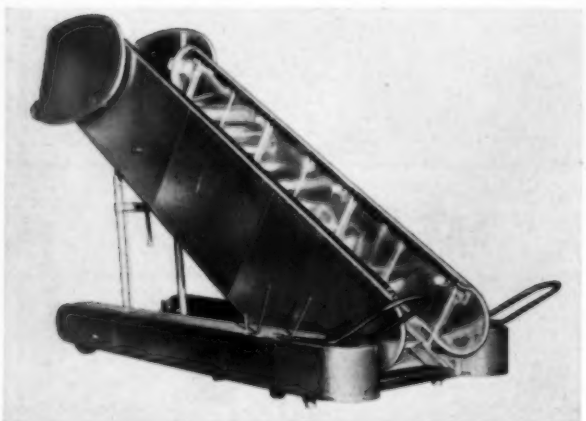


Weber Deluxe Model 130, made by Weber Aircraft Corp., Burbank, Calif. Designed for door heights from 80 in. to 130 in. from the ground. Includes stairway lighting system and tow bar. Total weight is about 2,600 lbs.

Circle No. 102 on Reader Service Card.

Bil-Jax mobile mounted passenger ramp, built by Bil-Jax, Inc., Archbold, Ohio. Mounted on Dodge 100 pickup truck bed. Adjusts in height with telescoping stairs sections. Hydraulic controls operate from cab of truck. Front and rear positioners engage ground in use.

Circle No. 103 on Reader Service Card.

Foam Sprinkler

Canadian subsidiary of Automatic Sprinkler Corp. of America, Youngstown, O. is making an automatic foam spray installation for hangars. The unit, to be installed at Canadian Pacific Airlines' hangar, has 600 sprinkler heads to cover floor with foam blanket in event of fire.

Circle No. 130 on Reader Service Card.

Floor Sweeper

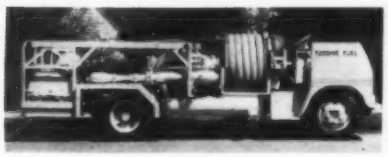
Battery-powered floor sweeper from Advance Floor Machine Co., Minneapolis, Minn., cleans 15,000 sq. ft. per hr. Machine lays a cleaning solution, scrubs a 24" swath, vacuums dirty solution, and dries the floor. Riding sulky is optional.

Circle No. 131 on Reader Service Card.

Ground Barometer

Bulova Watch Co., New York, has developed a barometer designed to give pilots information of pressure changes in flight for resetting of altimeters. The unit weighs 15 lbs. and is described as about the size of a clock radio. The ground based system can be adjusted to act automatically.

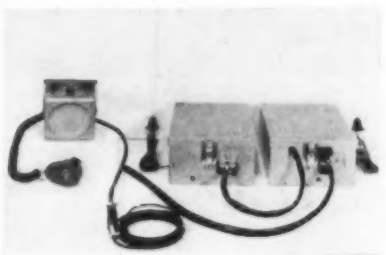
Circle No. 132 on Reader Service Card



Jet Fueler

Allied Aviation Fueling Co., New York, has developed a 600 gpm hydrant cart for jet aircraft fueling. It has decks and platforms specially designed for fueling the 707, DC-8, and Convair 880. Ground fueling reels are installed for turboprop fueling. Units will go into operation soon at Love Field, Dallas and Lambert Field, St. Louis. Manufacturer is Garsite Products, Inc., Seaford, N.Y.

Circle No. 133 on Reader Service Card.



Ground Radio

Model 707 JetCom VHF-AM/FM communications system is built by Communications Co., Inc., Coral Gables, Fla. for airport ground radio needs such as towing, emergency equipment, etc. Operates on 121.9 or 121.7 mc AM.

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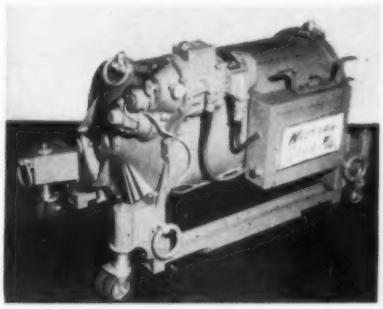

Airborne Winch

Precision Products Div. of Western Gear Corp., Lynwood, Calif., is producing a heavy-duty airborne winch. It is two spool with 205 ft. of 9/16 in. cable and exerts 5,000 lbs. of cable pull at 18 fpm, or 15,000 lbs. at 6 fpm. Power is from 28 v. dc motor or 400 cps 200 v. ac motor.

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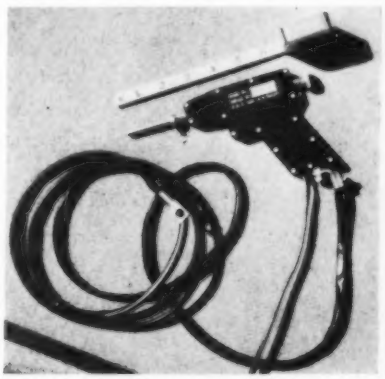

Welding Gun

Pacific Scientific Instruments Lab., Los Angeles, is selling a lightweight Poke Welding Gun which is said to be ideal for fast spot welding operations. It weighs 10 ozs. and has a weld force of 5 to 25 lbs.

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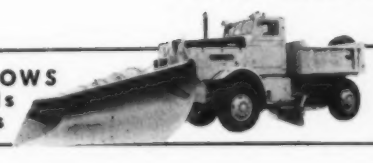

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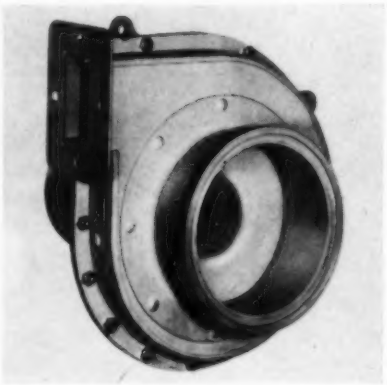
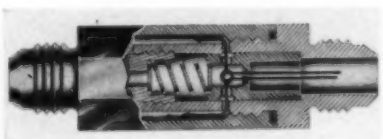
NEW PRODUCTS



Cooling Blower

A specially designed cooling blower for ground support units has been developed by Torrington Mfg. Co. of Torrington, Conn. It is designed to meet MIL-E-5272A, and will deliver 25 cfm against a static pressure of 8 in. of water. The blower is supplied with a 115 v. single phase 400 cps motor and weighs 4 lbs.

Circle No. 105 on Reader Service Card.



Fuel Oil Regulator

A new constant flow regulator for fuels and oils from Aero Supply, Corry, Pa. is designed to give a constant flow rate of 1.7 gpm for differential pressures of 10 to 2,000 psi. In ⅜ in. size—weighing ¼ lb.—the unit will handle pressures to 3,000 psi. Temperature range is minus 65F to 350F.

Circle No. 106 on Reader Service Card.

Rivet Gun

Compressed air rivet gun from United Rivets, Boston, weighs less than 4 lbs. and costs less than $100. It operates off plant air or compressor. Hose is available in 60-70 ft. lengths.

Circle No. 107 on Reader Service Card.

Flight Recorder Switch

Lockheed Aircraft Service, Inc., Ontario, Calif., has produced a tone-operated switch for use with the LAS flight recorder. The new device provides a permanent ground command record of geographical aircraft position. Switch is actuated by audio tone produced by a signal from a ground beacon transmitter.

Circle No. 108 on Reader Service Card.

ATC Beacon Checker

Packard-Bell Electronics Corp. is producing the first portable ac or battery powered check-out system for air traffic control beacons. Designated the ATC transponder ramp tester, the unit features optional radiation or umbilical test methods. Test set, which weighs 35 lbs., evaluates the interrogator-response characteristics of the ATC radar beacon system.

Circle No. 109 on Reader Service Card.

Inspection Light

A handy light, called the JetLite, is being produced by Burton Mfg. Co., Santa Monica. The sealed-beam light provides 65,000 candlepower. It weighs 6.7 lbs., including cord and transformer, and is sealed in vulcanized rubber. Average life of lamp is 150-200 hrs. It comes with 30 ft. cord.

Circle No. 110 on Reader Service Card.

GMT Watch

Rolex Watch Corp., New York, is making a Greenwich Mean Time watch which gives the time on any two continents simultaneously. It is self-winding and shows the date through a special window.

Circle No. 111 on Reader Service Card.

Flight Computer

New navigation computer designed by an SAS pilot eliminates the need to flip sides during computations. The instrument consists of four elements and can be used for all types of airplanes. Dealer inquiries are being sought.

Circle No. 112 on Reader Service Card.

Flight Recorder

Royston Instruments Ltd., Hanworth, Chertsey, Surrey, has designed a flight recorder which weighs 40 lbs. and gives information on performance, structural conditions, and crashes.

Circle No. 113 on Reader Service Card.

INFO FOR THE ASKING

VHF Com—4-page brochure gives all details on Narco Mark V all-channel VHF transmitter and receiver built by National Aeronautical Corp., Ft. Washington, Pa.

Circle No. 114 on Reader Service Card.

Small-engine stand—Brochure describes wheeled engine stand built by Lakeshore Industries, Inc., Dorval, P. Q. Canada, to handle aircraft engines weighing up to 2,200 lbs.

Circle No. 115 on Reader Service Card.

T-Hangars—Booklet by United Steel Fabricators, Inc., Wooster, O., gives specifications on T-Hangars for business aircraft.

Circle No. 116 on Reader Service Card.

Aviation insurance—Brochure by Associated Aviation Underwriters, New York, outlines facts you should know about aviation insurance.

Circle No. 117 on Reader Service Card.

X-ray—Triplett & Barton, Burbank, Calif., bulletin lists complete line of portable X-ray units for aircraft structural inspection.

Circle No. 118 on Reader Service Card.

Crosswind landing—Pamphlet from GeissGears, Inc., Washington, D.C., describes Geiss Safety Gear for cross-wind landing.

Circle No. 119 on Reader Service Card.

Aircraft polish—Leaflet describes West German-developed aircraft aluminum cleaner and polish marketed by The Anton Co., New York.

Circle No. 120 on Reader Service Card.

Airborne switches—Catalog from Consolidated Controls Corp., Bethel, Conn., a subsidiary of Consolidated Diesel Electric Corp., gives specifications for a complete line of airborne pressure switches.

Circle No. 121 on Reader Service Card.

Frequency converter—Technical bulletin from Cox Instruments Division of George L. Nankervis Co., Detroit, Mich., describes a broad range frequency converter for 15 to 40,000 cps inputs. Applications include flight recorders, computers, milliameters, and digital indicators.

Circle No. 122 on Reader Service Card.

Helicopter trim control—Airborne Accessories Corp., Hillside, N.J., literature outlines automatic stabilization system developed for Sikorsky helicopters. Contains system diagrams and describes the pilot options for fine-tuning the aircraft's attitude.

Circle No. 123 on Reader Service Card.

Sapphire system—Booklet from National Aeronautical Corp., Fort Washington, Pa., describes the 2½ Sapphire System which provides continuous contact with Air Traffic Control. Narco says system also acts as standby VHF transmitter, with numerous other features.

Circle No. 124 on Reader Service Card.

Polar path—All-purpose compass system developed by Bendix Aviation Corp.'s Eclipse Power Division, Teterboro, N.J., is described in 12-page brochure. System gives directional reference anywhere in the world.

Circle No. 125 on Reader Service Card.

Twilight light—Specification and price list from Don Hoskins, Chicago, outlines details of Hoskin Twilighter lighting system. Lights are FAA approved for daylight operation and must be shut down within a half-hour after sundown.

Circle No. 126 on Reader Service Card.

Horizon in 3-D—Brochure about the 3-D flight visulator is being offered by Coffing Industries, Inc., Covington, Indiana. The Coffing system, which can be installed in less than 30 minutes, gives the pilot constant reference as to his attitude.

Circle No. 127 on Reader Service Card.

Deicers—B. F. Goodrich Co.'s Aviation Products Division, Akron, O. has published a booklet about pneumatic deicers. Describes different methods of deicing, gives power requirements, efficiency figures, and maintenance information.

Circle No. 128 on Reader Service Card.

Aircraft service—12-page booklet from Lockheed Aircraft Service, Inc., Ontario, Calif., describes the company's capabilities in aircraft service, training, management, and transportation.

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Circle No. 23 on Reader Service Card.

NEW PRODUCTS

Rectifiers—General Electric Semiconductor Dept., Syracuse, N.Y., brochure has 24 pages of information on how to select specific selenium rectifiers for circuit applications. Included are complete worksheets, charts, graphs and nomographs.

Circle No. 130 on Reader Service Card.

Fire fighting—Folder from Fire Boss, Inc., Fort Worth, Tex., describes various fire-fighting units. The folder contains information on each type of unit produced by Fire Boss, plus a price list for all units and accessories.

Circle No. 131 on Reader Service Card.

Test equipment—Booklet from Propulsion Test Facilities, Inc., New Haven, Conn., describes the company's installation for producing custom aircraft and missile test systems.

Circle No. 132 on Reader Service Card.

Teflon—4-page illustrated brochure outlines the properties, applications, and available types of Fluoglas Teflon-coated fabrics and tapes. These fabrics are said to add strength from fibrous glass to the chemical and non-adhesive properties of Teflon. From Cadillac Plastic & Chemical Co., Detroit, Mich.

Circle No. 133 on Reader Service Card.

Amplifier—Engineering specifications are now available on the Power Amplifier which amplifies sine waves, square waves or pulses having amplitudes from one to 40 v. From Technitrol Engineering Co., Philadelphia, Pa.

Circle No. 134 on Reader Service Card.

Low-weather simulator—12-page brochure by Dalto Corp., New York, describes attachment to electronic simulator for pilot training in low weather approaches.

Circle No. 135 on Reader Service Card.

NOTES ABOUT SUPPLIERS

• Pan American has ordered an additional 26 Wilcox Model 714B ATC Transponders. This brings the total to 58. Deliveries are under way to PAA and other airlines as well as to airframe companies for factory installation.

• Hamilton Standard has delivered the first turbo-compressors for the Convair 880. The unit pressurizes the cabin and flight deck and provides fresh air for the Ham-Standard Freon air conditioning system in the airplane. Two units are used on each airplane.

• Pacific Southwest Airlines, San Diego, Calif. has purchased six Air-Torq jet engine starters from Pre-Flite Industries Corp., Paramount, Calif. The intrastate carrier will use the starters with its Lockheed Electras now on order.

• General Sound Control, Inc. jet silencers are being evaluated by Boeing, Douglas, and Convair for use in run ups of engines on their jet airliners. The units are said to cut noise level by 25 db.

• Jet Turbine Service, based at New York International Airport has been authorized as agent to overhaul Boeing gas turbines.

• Aviquipo, Inc. has been named dealer for sale of AiResearch DC-3 maximizer kits in four South American countries. Offices of Aviquipo are in Rio, Buenas Aires, Santiago, and Caracas. The maximizer kit adds 20 mph to DC-3 cruise speed.

• Greer Hydraulics, Inc., Idlewild Airport, has received orders for 22 Air Partner jet engine starters. The Air Partner is made by a subsidiary company, Atlas Copco. Ten units go to SAS, six to KLM, three to TEAL, New Zealand, two to Air India, and one goes to Canadair.

• SMS Instruments & Accessories, Inc. at Idlewild, has equipped its shop with jet fuel control, nozzle, fuel pump, and supercharger test apparatus. The new installation will enable SMS to service Pratt & Whitney JT3¼, Allison 501-D13, and General Electric CJ805 engines.

• Hamilton Standard will provide the air-conditioning system for the Lockheed JetStar. First JetStar deliveries, due in November, will contain two air-conditioning packages, located at the rear of the airplane.

• New orders have been received for the Boeing gas turbine Turbo-Starter. Pan American's Pacific Alaska Division has ordered seven units, which brings total sales to 80. One compressor, due for August delivery, will be based at Tokyo and will be installed in a Japanese-made truck. Other deliveries to Pan Am will be made in July for location at Honolulu, Wake, and San Francisco.

• Eastern Air Lines has placed an order for six Dalto Visual Flight Simulator Attachments and has an option on two more. Eastern will use the closed-circuit TV system in its low visibility approach training program. Unlike other visual simulators, which involve a fixed picture and moving camera, the Dalto unit uses a moving belt with imprinted runway patterns as its display.

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EN ROUTE

Wayne W. Parrish

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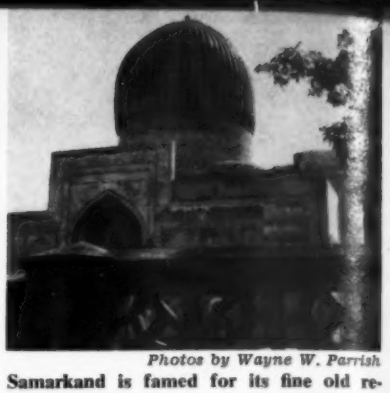
Visit to Tashkent ...A Dream Comes True



Photos by Wayne W. Parrish

Samarkand is famed for its fine old religious monuments, most of which are in partial ruins.

Some names on the world map seem to sing out with romance, mysticism, history and magic. They are exotic by their very nature, luring restless souls like me to visit them.

Tashkent and Samarkand and Uzbekistan, and Alma Ata in Kazakhstan are such names. I've looked at them on maps and wondered if I'd ever get to see them. Not only were they within the Soviet Union, but they were deep down in Central Asia, not far from Red China on the east and isolated Afghanistan on the south.

But dreams do come true. Last October, after our 6,000-mile roundtrip flight on the Tu-104A jet from Moscow to Irkutsk in faraway Siberia, my wife and I boarded another Tu-104A for the four-hour 1,850-mile nonstop hop to Tashkent.

It was well worth the trip. Central Asia is much different from the western part of Russia. The people are different. The climate is warm and dry. In fact, it just didn't seem like the Soviet Union at all. The transition from Moscow to Tashkent was like the contrast between Brussels and Leopoldville in the Congo, or San Francisco and Saigon. One learns that the Soviet Union comprises many races, customs, languages and climates and that not everything within the political union is as monotonously uniform as the cities on the customary tourist route in western Russia.

Tashkent is the capital of the Soviet Republic of Uzbekistan. It is a big city of well over a million. Less than an hour away by twin-engined IL-14 is Samarkand, as old as history itself. Timerlane is buried there. Alexander of Macedonia and his men swept through this whole area many centuries ago. So did Ghengis Khan from Mongolia. There is a sense and an atmosphere of ancient history everywhere. In its way this part of the world is quite fascinating. But until the past few years it has been inaccessible to westerners since the Communists clamped down before World War II, and largely since the Communists came into power.

The Uzbeks are a race unto themselves, a mixture difficult to describe. There is a little Oriental in them, but I suppose Asiatic would be the best description. Many have wonderful faces. Every boy and man wears the traditional Uzbek hat, a four-sided black and white affair which fits snugly on the rear of the head.

This is one part of the Communist world which was not taken over by the Communists. Imperial Russia conquered the Uzbeks in the Tsarist days in the 19th Century. Today the Soviet Union is gradually converting the old Uzbek way of life into the standard Communist pattern, and there are many Russians living now in Uzbekistan and controlling its destinies, but there is an astonishing amount of individuality and atmosphere remaining. The current decentralization program of Moscow will probably result in retaining much of this Central Asiatic color.

On this third long Russian jet flight we left Moscow in the morning. For lunch there was a very good beefsteak, well done but not cooked in grease for once. Even the fried potatoes were good, not soggy as usual. Sweet pickles were excellent. There was a slice of lemon for the hot tea. The cakes and bread were good. The apple for dessert was only fair, and the cheese only fair, but on the whole it was a good inflight meal. (Or maybe I was just plain hungry.)

There was a full load, in fact I can't imagine any jet flight in Russia not having every seat filled, with many odd types of passengers. There were some European Russians but most were from Central Asia and some with fancy headdress. Opposite us was a well-dressed high Uzbek official, quite intelligent looking, and his wife who was sporting a mink coat. (There are more classes and class distinctions today in Communist Russia than the U. S. ever thought of having. One Russian made quite a snide remark about the official's wife showing off a mink coat when such coats can't be worn in warm Tashkent.)

There isn't much to see at 30,000 feet altitude in any case, but it wasn't until we neared the Volga River that the clouds disappeared. It was the one and only time I've ever seen this famous river. If you'll look at a map of Russia you'll find a big body of water, Lake Aral, on the direct route between Moscow and Tashkent. We flew over the northern part of this big expanse of salt water. A lot of the land in this region is unfit for cultivation, at least without irrigation. It looked to be uninhabited desert. Late in the afternoon, although only four hours out of Moscow, we came in for a direct landing on the one long jet runway at Tashkent airport.

The terminal is fairly impressive on the outside, but the main lobby is small with a few wooden benches. On the second floor is a large lounge for international passengers (Tashkent is on the route between India and Moscow and is also an exit port for Afghanistan), and a large restaurant.

Just as dusk had arrived we were put in a car and whisked to the Intourist hotel. I won't long forget our driver, for we had him quite a few times after that. He had a special technique of speeding up whenever he wanted to turn a corner and how we missed hitting wagons and cyclists and other cars on those fast wide swings I'll never know.

Tashkent is a beautiful city in many respects, if one overlooks flies and dust. The streets are tree-lined and flowers abound. Although the region is virtually desert, the river water has been put to good purposes for irrigation.

Our hotel was a sad disappointment, especially since there was a brand new seven-story hotel recently opened. But some sort of Communist Asiatic writers' conference was just closing, so we had to use the old quarters—ancient, cold, dreary, and mediocre. On my insistence we got moved next day to the new hotel, which is a story in itself.

Women still dress colorfully in Samarkand in Uzbekistan.

Aircraft Data Cards

Aircraft selected for the Data Card Series in this issue of *AIR-LIFT* are the Lockheed 1049G Super Constellation, Douglas Super DC-3, and the Sikorsky S-55.

Model 1049G is an advanced version of the 1049 series with wing-tip tanks, and higher powered Turbo Compound engines.

The Douglas Super DC-3 is a modernized version of the world famous DC-3. It was used for a short time by Capital Airlines, and is now in service with the Navy.

Sikorsky's S-55 is made for both civil and military use. It can be converted to a cargo helicopter with 340 cu. ft. storage space.

LOCKHEED 1049G SUPER CONSTELLATION

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DOUGLAS SUPER DC-3 — NAVY: R4D-8

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SIKORSKY S-55 — USAF/ARMY: H-19 NAVY: H04S MARINES: HRS

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LOCKHEED 1049G SUPER CONSTELLATION

TYPE: 63-99 passenger transport. **WEIGHTS:** empty—73,016 lbs.; gross—137,500 lbs. **POWERPLANTS:** (4) Wright 972-TC-18DA3; rating—3,250 hp. **PERFORMANCE:** max. speed 370 mph; cruise speed—355 mph; max. range with 7,750 gal.; fuel cap.—4,620 mi.; absolute range—5,840 mi. **MFR.:** Lockheed Aircraft Corp., Burbank, Calif.

NOTES (for your personal use):

DOUGLAS SUPER DC-3

TYPE: twin-engine transport. **WEIGHTS:** empty—19,537 lbs.; gross—31,000 lbs. **POWERPLANTS:** (2) Wright R 1820-80; rating—1,535 hp. **PERFORMANCE:** max. speed—270 mph; cruise speed—251 mph; initial rate of climb—1,300 fpm; max. range—2,200 mi.; normal range—1,425 mi.

NOTES (for your personal use):

SIKORSKY S-55

TYPE: 7-12 Passenger helicopter. **WEIGHTS:** empty—4,888 lbs.; gross—7,200 lbs. **POWERPLANT:** Pratt & Whitney S3H2; rating 600 bhp. **PERFORMANCE:** max. speed—112 mph; cruise speed—85 mph; initial rate of climb—700 fpm; range with 185 gal. fuel—405 mi. **MFR.:** Sikorsky Aircraft Division, United Aircraft Corp., Bridgeport, Conn.

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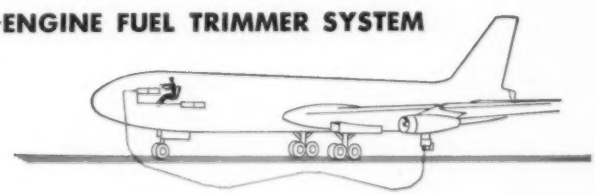

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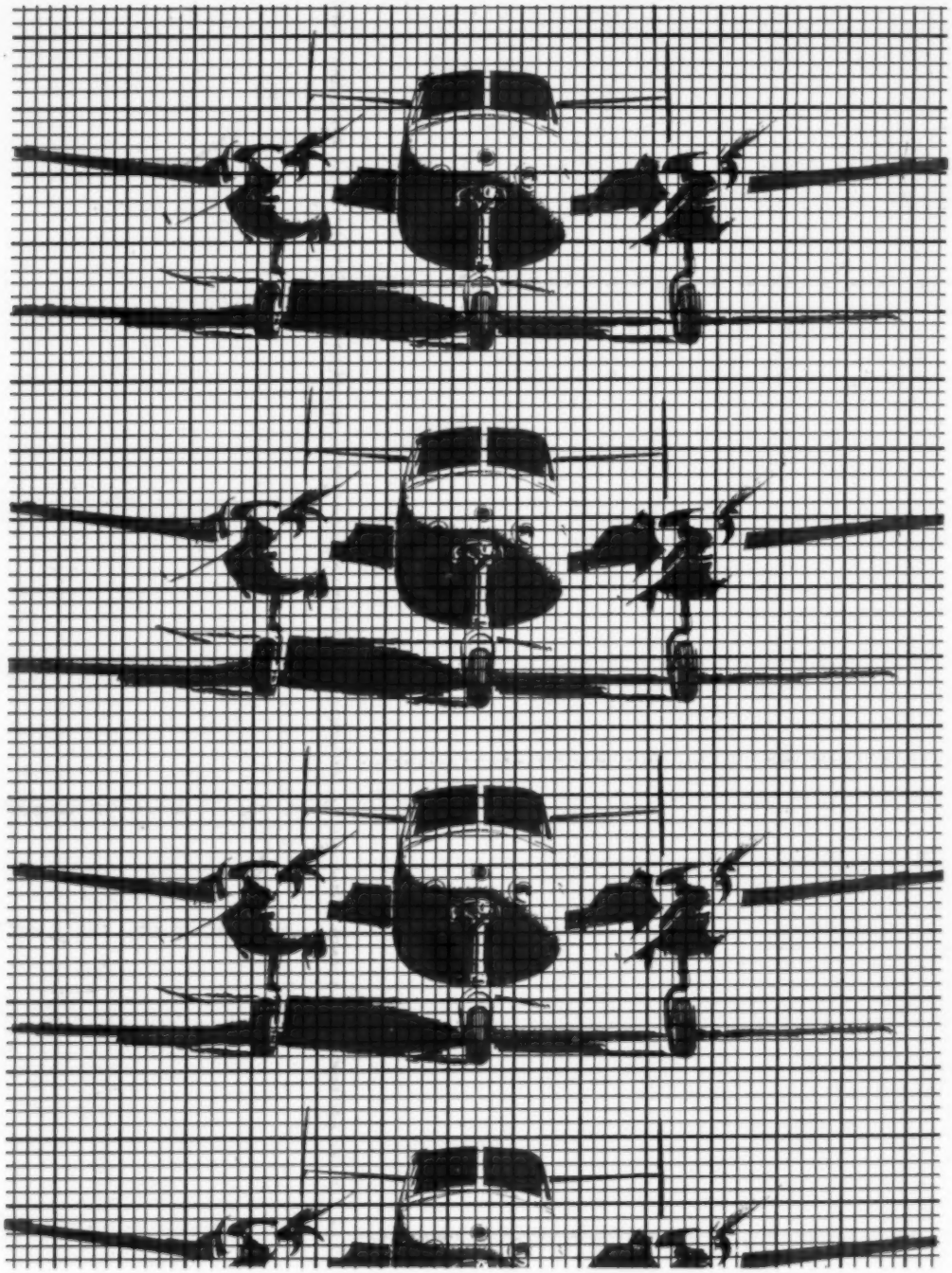

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